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ABSTRACT

Based on the theme of the past, present, and future of science, technology, and communication programs, this proceedings presents 49 papers delivered at the 1999 annual meeting of the Council for Programs in Technical and Scientific Communication (CPTSC). Papers in the proceedings are divided into 12 subsections: The Shape of Programs: Past, Present, and Future; Programs' Changing Emphases; Identity: English Departments, Humanities, and Beyond; Identity: Who Will Technical Communicators Be in the Future?; Programs and Technology; Programs and the World Wide Web; Spanning the Gap between Academia and Industry; Let's Get Real: Programmatic Efforts To Meet Stakeholders' Needs; Assessing Programs, with a Special Eye to Engineering Communication; International Technical Communication; Shifting Ways of Serving Clients; and Attracting, Retaining, and Keeping in Touch with Students. Papers in the proceedings include: "What the Past Can Teach Us about the Future" (Teresa Kynell); "Looking to the Future: From Technical Communication to Information Design" (Karen Rossi Schnakenberg); "Closing Our Eyes To See: Incorporating Visual Thinking into Technical Communication Courses" (Nancy Allen); "How To Get Writing Back into a Technical (Writing) Communication Program" (Mary Coney and Judy Ramey); "My Students or Yours? Escaping the Service-Department Role" (William Macgregor); "Training vs. Education: Technical Writing Programs within the Traditional English Department" (Michael A. McCord); "Moving on Alone: Past, Present, and Future for the Two-Year College Technical Communication Program" (Katherine Staples); "Technical Communication's Added Value in the Distance Learning Environment" (Marian G. Barchilon); "Should Technical Communication Programs Be Offered through Distance Education?" (Suzanne P. Schneider); "Web Design Courses: A Promising Future Role in Our Technical Communication Programs" (Don Payne); "Technical Communicators as Web Designers and Managers: Implications for Academic Program Development in Technical Communication" (Dale L. Sullivan); "Integrating Theory and Practice through Innovative Collaborations between Academicians and Workplace Professionals" (Christine Abbott); "Bridging the Gap between Industry and the Academy through Cross-Disciplinary, Real-World Courses: A Solution for Today's and Tomorrow's

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TechComm Programs" (Locke Carter); "Designing Technical Communication Modules for an Enterprise-Based Approach to Engineering Education" (Marilyn M. Cooper); "Enhancing the Future of Engineering Communication in Schools of Engineering and Technology: Collaboration in Communication Assessment" (Majorie Rush Hovde); "Developing a Global Technical Communication Program: A Work in Progress" (William O. Coggin); "Professor Becomes Trainer: Clues to an Inevitable Evolution during the 21st Century?" (Ann S. Jennings); "Enlarging Our View of the Future: Claiming a Place for Technical and Scientific Communication in Higher Education" (Jo Allen); "Tracking and Maintaining Communication with Graduates of Technical Writing Programs: What Can Former Students Tell Us?" (Julie Dyke); and "Recruiting for Bachelor's Programs in Technical Communication" (Laura J. Gurak). The proceedings concludes with three special presentations. Appendixes contain announcements of Distinguished Service Awards, the conference program, minutes, treasurer's report, a list of conference participants, and a list of CPTSC members. (RS)

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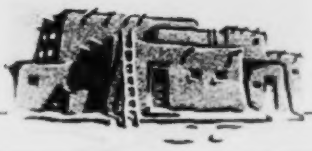

New Mexico

MCMXCIX 1999

Science, Technology, and Communication: Program Design in the Past, Present, and Future

Proceedings 1999
26th Annual Conference
Santa Fe, New Mexico

CPTSC
Council for Programs in Technical and Scientific Communication

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About CPTSC

Purpose: The Council for Programs in Technical and Scientific Communication was founded in 1973 to (1) promote programs in technical and scientific communication, (2) promote research in technical and scientific communication, (3) develop opportunities for the exchange of ideas and information concerning programs, research, and career opportunities, (4) assist in the development and evaluation of new programs in technical and scientific communication, if requested, and (5) promote exchange of information between this organization and interested parties.

Annual conference: CPTSC holds an annual conference featuring roundtable discussions of position papers submitted by members. The proceedings include the position papers. Authors have the option of developing their papers after the meeting into more detailed versions.

Program reviews: CPTSC offers program reviews. The reviews involve intensive self-study as well as site visits by external reviewers. Information is available at the CPTSC website.

Website: CPTSC maintains a website at http://www.cptsc.org
This site includes the constitution, information on conferences and membership, a forum for discussion of distance education, and other organizational and program information.

Listserv: CPTSC's listserv is CPTSC-L.
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About the 26th Annual Conference

This conference was held at the Plaza Resolana in Santa Fe, with New Mexico Tech and New Mexico State universities serving as co-hosts. Plaza Resolana is a study and conference center whose warm plaza wall invites a learning community based on dialogue and collaboration.

The conference theme, "Science, Technology, and Communication: Program Design in the Past, Present, and Future," encourages dialogue at the turn of the century as participants, in Janus-like fashion, reflect on the past and envision the future.

Upcoming Conference

2000: October 19–21, Menomonie, WI   Host university: University of Wisconsin - Stout

Santa Fe

New Mexico

MCMXCIX 1999

Science, Technology, and Communication: Program Design in the Past, Present, and Future

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26th Annual Conference
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CPTSC

Council for Programs in Technical and Scientific Communication

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The Shape of Programs: Past, Present, Future

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William J. Williamson

What the Past Can Teach Us About the Future

Teresa Kynell **Northern Michigan University**

As teachers of technical communication strive to make their courses both meaningful and grounded in real-world, industry expectations, one perhaps overlooked source of inquiry is the history of technical communication. If studying the history of any discipline helps us to understand the pedagogical and curricular evolution of that discipline, certainly teaching those shifts must then help students a) to understand the complex factors upon which contemporary classroom strategies have been predicated and b) to take an active role in predicting future directions in the curriculum.

One particularly useful area of historical application includes the English educational practices of late nineteenth/early twentieth century engineers in this country who struggled for status at the academy while wrestling with the label of "vocationalism" routinely associated with the profession of engineering. Engineering English faculty worked to develop appropriate and meaningful English courses for students, and their experiments in technical communication— some of the earliest in this country— provide excellent examples for contemporary students not only of how the discipline has evolved, but also how the discipline has been grounded in some principles relevant today. In addition, studying status concerns and issues of marginalization— issues important to engineers— sheds new light on the striking parallels between the development of engineering as an academic profession and the evolving academic foundation, historically, of a technical communication curriculum. Studying history, then, can help students to understand better from what background they emerged while also providing good and engaging examples of written communication relevant to our ongoing discussion of contemporary technical communication pedagogy.

Since history, in so many cases, provides a place to begin the dialogue— a way to make sense of our traditions— advanced students sometimes seek to conduct their own historical research. Familiarizing students with the techniques of historical inquiry can be a productive and challenging pedagogical strategy. Perhaps the single most important consideration in tackling a historical project is the critical question which will drive the research. Too often students perceive inquiry into the past as little more than gathering facts or "reporting" information. For example, if a student sought to study the history of technical communication and her only goal was to generate a broad, sweeping timeline of people and events, how would she begin? Thus, development of a critical question, typically predicated upon some desire to understand one aspect of our contemporary disciplinary status or situation, is a good place to begin.

Beyond this comes other questions worth considering:

- Given the contemporary nature of the discipline, with its emphasis on science, technology and communication, where would experiments in technical communication likely have occurred?
- If the educational and pedagogical patterns of scientists and/or engineers, for example, provide a potential foundation for evidence of early experiments in technical communication, at what time in this country's history would such experiments begin and why? What possible changes would curricular experiments reveal?
- What kinds of documents would highlight those changes within a given curriculum? Can such documents be interpreted so as to reveal the possible intent of the writer? Do the changes demonstrate a consistent and potentially important pattern that may have led to contemporary practice?

- What kinds of material/documents will reveal— either explicitly or implicitly— early attempts at professionalizing the discipline?

Establishing questions like these, prior to the search for information, presupposes the vital role of context and interpretation in the process of historical detective work. Utilizing historical sources and the practice of historical inquiry can enliven classroom discussion and provide contemporary students with an important link to the past.

Looking to the Future: From Technical Communication to Information Design

Karen Rossi Schnakenberg **Carnegie Mellon University**

Within the last six months, we at Carnegie Mellon have reconceptualized our BS degree in Technical Writing and proposed a revised curriculum that's scheduled to take effect, appropriately enough, in fall 2000. The changes bear directly on two questions that concern this meeting: What issues concern technical communication programs today? What new programs or concentrations may emerge in the 21st century?

The short version of what we've done is to move from a flexible, generalist curriculum developed over 30 years ago to a more specialized one that includes concentrations in Information Design and Scientific/Medical Communication. Although we had, over the years, made a number of changes in specific courses, the basic curriculum— 5 core courses, a flexible set of writing/rhetoric electives, and 11 courses in calculus, statistics, and the natural sciences— had remained largely unchanged, in large part because student feedback, our 100% placement rate, active employer recruitment, and more than respectable starting salaries indicated all was well.

The revision was prompted by a convergence of internal and external elements. More specifically, we found ourselves competing with other departments at CMU for students who had once been a kind of private resource because we had for so long been the only department focusing on the conjunction of communication and technology. But new undergraduate programs in Information Design, Human Computer Interaction, and Communication Planning and Design have pushed us to redefine what we mean by technical communication and to revise our curriculum to match that redefinition. The presence of these alternatives made us realize that we have untapped (and often unadvertised) expertise that is directly relevant to all of these areas and that by promoting this expertise we could enhance the options open to our majors while making our programs more desirable to other potential students.

Our thinking is based in a sense that traditional conceptions of the technical communicator as a "bridge," "translator," or "interface" between experts and non-experts fall far short of describing what graduates of our programs do and how the positions they enter differ substantially from those of only a few years ago. With the growing use of computers for organizing, managing, and communicating information, technical communicators no longer simply develop print, online, and multimedia documents for defined audiences. In increasing numbers, they create, design, implement, and manage flexible information systems and are responsible for both communicating with prospective users and orchestrating and facilitating a range of flexible interactions. What's involved is nothing less than a major shift in how information, technical and otherwise, is developed, distributed, and used, and an accompanying shift in the relationship between developers and users. In short, technical communicators are becoming creators and developers and managers of both information and communication systems. And this means that our curriculums must keep pace with this change while continuing to provide the basic skills that will allow our graduates to move smoothly into the next and as yet unknown development. We think our revised curriculum takes a major step in this direction.

The accompanying figure provides an overview of our current and newly approved requirements for our BS in Technical Writing degrees.

Carnegie-Mellon Undegraduate Curriculum

	Current BS in Technical Writing (TW)	Proposed BS in TW Information Design/Software Track	Proposed BS in TW Science/Medical Comm Track
	20 courses 6 double-count in College Core	18 courses 5 double-count in College Core	18 courses 5 double-count in College Core
Science, Math, Computer Science, Engineering Courses	**11** courses based on providing a background in all areas and in-depth study in at least one •one each in chemistry, biology, physics, computer science, statistics, and calculus (6) •a second in statistics or calculus (1) •four additional courses chosen so that the total of 11 courses includes a 3-deep sequence in one subject area	**6** courses based on college requirements for the BS degree and relevance to specific area of concentration •Statistics 1 & 2 •Calculus 1 & 2 •Introduction to Computer Programming •Object-oriented Programming	**8** courses based on college requirements for the BS degree and relevance to specific area of concentration •Statistics 1 & 2 •Calculus 1 •Introduction to Computer Programming •Object-oriented Programming •3 courses in biology, chemistry, physics, or engineering
English Core Courses	**2** core English courses •Interpretive Practices •Survey of Forms (genre-based)	**2** core English courses •Interpretive Practices •Survey of Forms (genre-based)	**2** core English courses •Interpretive Practices •Survey of Forms (genre-based)
Major Specific Core Courses	**7** courses based on flexible options *3 Core Courses* •Intro to Prof & Tech Writing •Advanced Prof & Tech Writing •Communication Design Fundamentals (graphic design) *4 Bound Electives chosen from the full list of writing and rhetoric offerings. Typical choices:* •On-line Information Design •Document Design •Planning & Testing Documents •Science Writing •Journalism Workshop •Argument •Rhetoric & Public Policy •Rhetoric of Science •Corporate Marketing & Communication •Writing for Multi-Media	**8** courses chosen for relevance to concentration *5 Core Courses* •Intro to Prof & Tech Writing •Advanced Prof & Tech Writing (project course) •Information Design Fundamentals •Document Design (visual/verbal) •On-Line Information Design (project course) *3 Theory/Specialization Courses from the following options* •Instructional Design •Planning & Testing Documents •Research Methods •Rhetoric & Public Policy •Technology & Communication •Language & Culture	**8** courses chosen for relevance to concentration •*5 Core Courses* •Intro to Prof & Tech Writing •Advanced Prof & Tech Writing (project course) •Information Design Fundamentals •Document Design (visual/verbal) •On-Line Information Design (project course) *3 Theory/Specialization Courses from the following options* •Science Writing •Medical Communication •Research Methods •Instructional Design •Rhetoric of Science •Rhetoric & Public Policy •Medicine in Society •Language & Culture
Electives in Management Technology, and Communication		**2** courses that contribute to the focus. Chosen from a list of about 20, many outside English. Typical choices: •Organizational Behavior •Experimental Methods •History & Issues in Technology •Cognitive Psychology •Intro to Human-Computer Interaction	

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Where the Local Ends and the General Begins: An Important Issue for Professional Writing Programs

Graham Smart **Purdue University**

A decade ago Cy Knoblauch (1989) pointed to a disjuncture between the curricula of professional writing programs and the complex realities of the workplace. He argued that representations of workplace environments and writing practices provided in such curricula were largely "school-sponsored fictions"— "academic conceptions" and "textbook generalizations" uninformed, in any serious way, by "phenomenological," or ethnographic, research. At the same time, Knoblauch raised the specter that workplace writing practices might turn out to be so complex, dynamic, and context-specific that they couldn't be taught in school at all, but rather only learned in situ, after individuals move into careers in particular professional organizations.

So where are we now, ten years later, with regard to these concerns? Well, I think we've made some good progress: although abstract (and often questionable) representations of workplace writing continue to accumulate in the intertextual world of technical communication textbooks, we do have many more reports of empirical research to guide us in designing our curricula (e.g., Spilka, 1993; Duin & Hansen, 1996; Sullivan & Dautermann, 1996; Dias, Freedman, Medway, & Paré, 1999). But while this research tells us much about the practices of workplace writers, it also confirms Knoblauch's suspicion that at least some aspects of writing activity and expertise are so site-specific, so thoroughly enmeshed in the particularities of local contexts, that they can only be learned through actual experience in a workplace setting.

So where does this leave us as teachers of professional writing? Do we fold up our tents and find another line of work to occupy us? I don't think we need to do anything that drastic. However, I do believe that we need to conduct research to help us answer an important question: Which aspects of workplace writing activity and expertise involve general, transportable knowledge and abilities that can be developed in school and then transferred, productively, into a range of different professional settings (as opposed to aspects of writing activity and expertise that are so site-specific that they can be acquired only through experience in a particular workplace)? The obvious corollary to this belief is that as we begin to identify such general, transportable knowledge and abilities through our research, we should focus our energies on designing curricula that will enable our students to develop them. To this observation, I would add a further point: an addition to helping our students acquire general competencies they can apply (and further develop) once they cross into the realm of professional practice, we must also help them gain the sophisticated rhetorical awareness needed to "read" the discursive idiosyncrasies of a new workplace, whatever these might turn out to be.

Two final questions, then: What kind of research can help us distinguish between those aspects of workplace writing expertise that can be developed in school and then applied in diverse workplace settings and those that are specific to a particular professional site and so can only be acquired once there? And how can we learn more about the nature of the rhetorical awareness needed to "read" the discursive idiosyncrasies of a new organizational environment? I want to propose one possibility: We can study the experience of our students as they move from college into the workplace, either as interns and co-op students or as permanent employees. Precedents for this type of inquiry already exist (e.g., Anson & Forsberg, 1990; MacKinnon, 1993; Dias & Paré, in press; Dias, Freedman, Medway, & Paré, 1999), but we need much more of it. Researching such border-crossings into a range of professional settings can help us identify those writing practices and competencies that appear to be common to a variety of workplaces and, at the same time, help us learn more about the rhetorical savvy our students will require in order to recognize and deal with the idiosyncrasies of new environments. From there, we can get on with the job of constructing curricula that will enable us to prepare our students for the rhetorical challenges that await them.

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Mediating the Future: Our New Ph.D. in Texts and Technology

Paul M. Dombrowski **University of Central Florida**

Our Ph.D. in Texts and Technology (T&T) will be proposed in January 2000 to begin in Fall 2001. As co-chair of the Ph.D. committee, I describe our proposal and hurdles we have faced in the proposal process.

T&T is like Technical Communication yet different. Housed in English, it deals with written texts but, through alliances with film and animation programs, also with visual, video, and audio creations as well as with hypertext and virtual reality. It encompasses all media pertaining to discourse, historical studies and future studies, theory building, criticism, and the relation between technology and discourse itself. Contexts range from industrial, to pedagogical, to artistic, to entertainment. Theory, history, and research form the basis of the program, with history and theory guiding research while we develop new theories to help us shape the technological future. New dimensions of rhetoric will be explored and defined, while traditional dimensions of rhetoric will find new applications. Each student takes three core courses, three restricted electives, and several interdisciplinary electives before a corporate internship and a teaching practicum. The internship allows students to explore new communicative possibilities while the teaching practicum allows all others to benefit from the knowledge and practical experience of doctoral candidates, linking them in a cooperative community.

Defining T&T has been a struggle. At first, we sought to embrace all elements of our traditional English department in the definition. BOR and the president had made it clear they would support neither a doctorate in English nor in Technical Communication, but a unique program with a technological interest but directed mostly toward an academic market. With this input and an external consultant, we realized that all interests could not be accommodated.

Curriculum has been an important issue as we defined the program within realistic parameters of faculty, resources, and student numbers. Many courses will be offering to both master's and doctoral students. The core will consist of three semester-long courses in theory, history, and research. After these, students can choose from restricted electives such as rhetoric, research design, and advanced theory and from interdisciplinary electives such as film, animation, literature, and computer science.

Faculty has been an issue, too. Though several recent hires have afforded new strengths, we still seek faculty experienced in directing dissertations and in writing successful grants. Funding is another issue. Though we will have generous funding initially especially for material resources and space, the program is expected to be self-supporting after three years. We are developing partnerships for support, internships, and potential placement and fortunately have a wealth of high-tech opportunities in software, communication, animation, and simulation and training industries. Our university also has a strong computer science department and a vigorous institutional commitment to technologies such as virtual reality, simulation, training, and distributed learning.

The proposal is the final issue, including sections on needs assessment, faculty resources and loads, external consultants, funding, resources of space and equipment, library resources and other areas. Our needs assessment shows keen interest from prospective students, no related programs in the Southeast, relatively few Ph.D.s granted per capita compared to other states, and good marketability of future graduates. Composing a single coherent document with a uniform style will be our last hurdle.

We invite you to read about our program and take our survey at http://media.dml.cs.ucf.edu/t&t/

Closing Our Eyes to See: Incorporating Visual Thinking into Technical Communication Courses

Nancy Allen **Eastern Michigan University**

With our increased interest in the visual elements of writing, we are becoming more effective at presenting information in our documents in a visually attractive way. But presentation isn't the only way that visual processes can be used to enhance technical communication. We can also benefit by learning how to think visually. Visual thinking is a technique that engineers and designers have long found valuable for the planning stages of projects as well as for communicating with clients as plans are being worked out. I would like to advocate the use of visualization as a planning, problem solving, and communication technique for technical communicators.

Visual thinking is as old as Aristotle and as new as Sullivan and Porter's visualizations of research processes. It has been part of technical communication since daVinci prepared sketches of catapults and flying devices for the dukes who were his clients. Visualization is a tool that we, as communicators, can also use, yet too often its contributions to thinking and for developing creative solutions to problems has been forgotten or neglected in our programs. Our years in traditional schooling have conditioned us to conceive of thinking as a verbal process and to view the sketches on our note pads as doodling, useful to pass some time but not really valuable for problem solving. It's not surprising, then, that many technical communicators have been unable to develop their visual thinking skills beyond minimal levels.

Paul Laseau, who wrote *Graphic Thinking for Architects and Designers*, has prepared guidelines for visual thinking as an invention tool for solving problems and communicating. "Visual images," he says, "have tremendous potential as stimulants or catalysts for thought" (14). He believes that visual thinking helps us to externalize our thought and to keep our thinking about a problem exploratory and open-ended. It also helps us to solve problems by working *with* clients rather than *for* them because it helps the clients to "see" what a proposed solution might entail and to make useful comments during planning sessions.

Robert McKim, author of *Experiences in Visual Thinking*, holds that thinkers who cannot escape the structure of language in their thinking, who are unaware that thinking can occur in ways other than through language, are using only part of their brains. McKim developed a system to help people develop their visual thinking skills through puzzles and exercises that interrelate seeing, imagining, and drawing in a fluid way. His exercises give thinkers experience in seeing a problem from different angles and imagining various solutions, which they sketch quickly in order to aid memory. His system has been incorporated into the mechanical engineering curriculum at Stanford.

Anne Balsamo, now working at Xerox PARC, uses large wall charts that illustrate the segments and time line of large projects involving several people. During the process of their development, the charts help to focus thinking during planning sessions and to develop structure for the project. Once drawn the charts then help individuals see their work in relationship to that of others on the project and to track their own progress as well as that of the project as a whole.

Among our technical communication teaching colleagues, Richard Johnson Sheehan has developed a system for teaching his students to think visually. He builds from Rudolf Arnheim's three principles: (1) vision is selective, (2) fixation solves problems, and (3) shapes are concepts. Through these principles Johnson Sheehan develops a set of approaches to design that help his students compose their technical communications visually.

Ron Fortune, who teaches technical communication at Illinois State University, has done considerable research on the history of visual thinking in our educational systems. As a result of his work, he believes that "Analyzing the relationship between word and image... provides a necessary foundation through which students can learn to make critical decisions, as writers and as readers, about how these features of a multimodal text work interactively."

We need to follow the lead of these thinkers and take advantage of our visual as well as our verbal abilities.

Visual thinking makes use of talents that we all have and can develop into useful skills. Our visual skills are not a substitute for verbal thinking. We use both. In fact, we need to stop thinking about these two abilities as separate and even contradictory ways of working and instead start thinking of them as integrated. When we think, imagine, daydream, we visualize and verbalize together. Take, for example, our dreams; they include dialogue along with and in supportive relationship with their dynamic visuals. Visual thinking has been a valuable part of our past. I would like to see it become a more widely used part of our present technical communication programs and a contributor to these programs as they evolve into a more complex future in a visual age.

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Thinking Visually

Theorist/Educator	Purpose of Visual Thinking	Activity
Aristotle	Memory aid for public speaking	Imagine walking through a building or location and connect a part of the place to a point of the speech. Later visualization of walking through brings each point to mind.
da Vinci	Drawing as a way of thinking and trying out new relationships	Sketch
Paul Laseau	Catalyst for thought • to externalize our thought • to keep our thinking about a problem exploratory and open ended • to work *with* clients rather than *for* them	Observe (really see) Perceive (draw to uncover organization, what interests you) Discriminate (see details) Imagine (extend drawing, mental games) Combine verbal and visual notes
Robert McKim Betty Edwards	Break from language thinking	Work on puzzles and exercises that interrelate seeing, imaging, and drawing in a fluid way: tangrams, relaxation exercises, drawing from a picture viewed upside down
Patricia Sullivan James Porter	Aid to thinking and to seeing relationships among parts	Diagram sections and processes
Anne Balsamo	Focus for thinking during planning sessions and for developing structure of project	Develop large wall charts on foam core board
Richard Johnson-Sheehan	Approaches to document design	Rudolf Arnheim's three principles: 1. vision is selective 2. fixation solves problems 3. shapes are concepts
Nancy Allen	Aid for revealing connections and new perspectives	Draw two or more pictures of situation

How to Get Writing Back into a Technical (Writing) Communication Program

Mary Coney & Judy Ramey **University of Washington**

Like many vital and forward-looking programs, the Department of Technical Communication, in both its graduate and undergraduate curricula, has developed a number of new courses to keep up with the pace of our discipline and the needs of professional practice. Included in this number are usability testing and evaluation, online help systems, multimedia, rhetorical theory, visual communication, international communication, web design, human cognition, and technology assessment.

All of these innovative courses have taken a enormous amount of faculty energy and attention, and the students have responded with similar energy and appreciation. They graduate from our program feeling— rightly so— that their knowledge base and conceptual sophistication make them not only strong competitors in today's market but also leaders in developing new processes and products. Their hiring and career records confirm the efforts that they— and our faculty— have made.

Yet there has been a cost for these curricular initiatives, one that we didn't immediately notice but that was undeniable once it came to our attention: Writing instruction (yes, even grammar, style and editing)— the bread and butter of technical communication— had tended to be downplayed in favor of the more tempting, attention-grabbing courses. Our students needed, and wanted, to write better. It wasn't that we weren't serving up the usual writing fare; we were just paying more heed to our specializations, in our teaching, our research, and our publications. The TC Curriculum Committee was to reinvigorate our current offerings in technical writing, but more importantly, to infuse writing instruction and practice into all our courses. What follows are the changes we have been making to our curricula, the difficulties encountered, our solutions, and assessment tools. We offer these, not just to tell a University of Washington tale for its own sake, but to suggest that the situation is not unique to our program and that our solutions, both proposed and accomplished, might be useful for our programmatic peers.

1. **Solving the grammar conundrum.** Talented as they are, many of our students have not mastered the grammar and mechanics of English to the level we expect— and the professional world demands. Yet where to teach it, which course to take valuable time from to address what could be called basic, or even remedial, material, has been an ongoing question in our curriculum committee. This question is particularly critical to the teachers of our style course, which requires students to have a sophisticated understanding of syntax and punctuation. In the past, we have used up three weeks out of a ten-week quarter to bring students up to speed (and even that isn't time enough). Our proposal is to increase the style course by one credit, and create a concurrent computer lab course, staffed by a TA, to deal exclusively with grammar and mechanical issues, using several online sites and individualized instruction.
2. **Adding a required writing course for undergraduate majors that focuses on the creation of specialized documents.** This course would be a bookend to our current Technical and Scientific Writing, and would allow us to increase the number of writing experiences for our students. It would focus on longer pieces than the first course, such as an article for publication, a proposal, and a questionnaire, all of which are based on research-based problems that the class is studying.
3. **Adding document production to revision in the style course.** As good as our style course is, it has tended to stress rewriting sample sentences from the course text (Williams, *Style: Ten Lessons in Clarity and Grace*). We are now adding style exercises— four short pieces on a topic of each student's choice written in distinctly different styles: an objective/passive, a personal/active, a coherent, and finally a style of choice. This last one pro-

duces many creative, sometimes hilarious, renditions of the students' topics— in poetry, movie scripts, dialogues for an advertisement, op-ed articles, even songs. To see that their topics change in meaning as the style changes is, among other things, a serious lesson for students about the nature of language and truth.

4. **Building a Writing Center to serve not just TC students but all COE students and faculty.** This center, staffed by undergraduate students drawn from the engineering departments as well as TC, provides a supportive setting in which students, on an appointment or drop-in basis, can discuss their writing with other students. These tutors are carefully trained to guide the students as they revise thier own writing rather than telling them what to change. The Center also supports faculty in creating and evaluating writing assignments. Since it opened two years ago, it has doubled the number of student appointments and faculty requests.
5. **Making all our undergraduate courses fulfill the University W-Course requirement.** To qualify, these courses must require 10–15 pages of graded, carefully annotated, out-of-class persuasive or expository writing, in the form of two or more short papers or a longer paper with a required revision. While we realize that such a requirement means time and effort for the instructor, we think it is a necessary part of our responsibility to our students and to the world we are preparing them for. As one member of our faculty put it, "If a program like ours doesn't teach writing, who should?"
6. **Offering a new pathway in science writing,** including the publication of a magazine, Northwest Science and Technology and a graduate-level course in writing up research for publication (TC 509). Both undergraduates and graduates can follow this path. The magazine serves as a clinic for the writing courses, in which students create a story list, interview sources, compose the article, and if the article is accepted for publication, earn a byline, and a piece to enrich their portfolio.

Assessment is taking several forms: student evaluations, self-evaluation by instructor, peer faculty evaluation, exit interviews of students, and industry feedback. Furthermore, we will focus on the outcome of these changes as part of our on-going portfolio assessment.

We believe that in a strong program in technical communication, there can be no traditional course. The constant call for innovation challenges all our courses, writing and style as well as web design and usability testing. Professional competency for technical communicators mans exactly that-an integrated set of skills and knowledge base that can serve them in all their many roles and responsibilities, which we as educators can only imagine for them. But surely the sine qua non for a technical communicator is the ability to write well. Developing that ability requires much practice and practice of many kinds. In making our innovations, we have tried to provide just that.

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Defining, Shaping and Working in Emergent Information Environments: Adapting Technical Communication Programs to a New Definition of Texts, Technology, and Usability

David Gillette **University of Central Florida**

As more of the documentation process turns to online presentation, and more communication takes place in an online or digital-focused environment, technical communication programs need to broaden their fields of enquiry and pedagogy to include the study, creation and evaluation of mixed-media, experience-centered information environments. The basics of textual rhetoric still must be taught, but so we must also teach the theories supporting our understanding of visual perception, cognitive psychology, on-screen narrative presentation, call-and-response interaction, and architectural and civil engineering design theory applied to the digital world. Because a computer-based presentation is a collage of various media formats (television, film, live theater, printed text, still photography, and painting), a well-trained technical communicator needs to be well versed in how all these media elements work individually and in concert to make a coherent statement in a digital-based environment.

A technical communicator needs to be skilled in guiding and evaluating the interaction that occurs when a user works within the information environment the technical communicator has created. Until recently, most concepts of visual and interactive presentation inside technical communication programs have been limited to discussions of printed page design, and to the two-dimensional arrangement of text and graphics on a computer screen (usually informed by theories derived from print). However, in the coming years, technical communication programs need to become more holistic in approach to consider technical communicators not only as writers, or graphic designers, but also as information architects and designers of interactive, experience-centered information environments.

This more holistic approach to technical communication prompts us to ask and answer some basic questions about how this will impact current technical communication programs.

- How should a good program effectively and fairly evaluate student work that requires not only a textual and graphical analysis, but also an analysis of the experiential aspect of the work?
- What type of expertise will be required of program faculty to not only evaluate multi-dimensional, mixed-media creations, but to also be able to teach the proper aesthetics, ethics and logical structures associated with these creations?
- What role will writing play in future technical communication programs?
- Should writing only be defined as the production of printed text?
- In an experience-based, information environment, what part is text, what part is experience, and what part is design?
- How will our definitions of text and technology change as technical communication changes?
- With new definitions of text and technical communication, do we also need to redefine what we consider to be proper or productive scholarship in our field?

In conjunction with the other presenters at the CPTSC, our presentation panel began discussing the questions listed above with reference to current information environments (such as: networked inter-active tutorials, distance-learning training and collaboration, online document editing and development). The primary focus of the morning's discussion was to begin a thoughtful debate in our programs about the efficacy of expanding the definition of technical communication to include the design, analysis and use of experience-centered, information environments.

Rules, Communities, and Repertoires: The Changing Role of Texts in the Service Course

Dan Riordan **University of Wisconsin - Stout**

While the need for textbooks remains constant, what is needed in textbooks constantly changes. I would like to review the needs that texts have filled in the past and present, and outline the direction I think they need to move in the future.

When the field was first defining itself in the late 60s, texts and teachers emphasized rules of style and "correctness." These ideas, offshoots perhaps, of the Warriner handbook tradition, came into the programs with the influx into the field of teachers of literature and composition. Unsure of exactly what writing was in industry, those of us who started in the 70s needed texts that gave us insights into effective style and that prescribed the rules for the appropriate genres. Courses, my courses anyway, were focused closely on the textbooks and imparted the correct way to do things, especially how to handle the basic genres of process description, mechanism description, instructions, letters, proposals and feasibility reports, and how to write a clear, unambiguous style. Key pedagogical items were the poorly done genre example and the list of sentences to analyze and revise. The emphasis was on the final text.

Throughout the 70s, 80s, and 90s, as the field professionalized and rhetoric animated all aspects of composition, teachers and texts emphasized community. The questions in the class started to change, from how do I make this clear (to an audience), to how do I make this clear to THIS audience? As our scholars explored the duties of writers in industry, our projects developed audience specificity--instructions on how to use the new electronic card catalogs, proposals about parking on campus. Students had to learn to incorporate into the projects both what they knew and what they knew their peers knew. Key pedagogical items became the peer review sheet and the campus project. Word processing allowed a much more sophisticated sense of document design. Emphasis was on the reader.

As the 00s approach we will need a new type of text book, one that emphasizes repertoire. Key factors in the creation of this need are these: Microsoft Word is now a multimedia creation tool, the Web has permeated everything, and the economy is unavoidably international. Word encourages and enables beginners to create "collages" that bring together numerous files that help convey what used to appear only on paper. Web sites have become a key mode of exchanging information. Not just Fortune 500 corporations, but even small businesses with Web access, now function internationally. Writers are assemblers of information; for that task they need to develop a repertoire of skills. They must learn the principles of multimedia/collage; they must learn to impart their credibility; they must develop electronic writing skills, such as how to chunk text, create heads, create links, present information in levels of specificity; they must be able to write so that web translation programs make their information communicable in other languages. Key questions for teachers are: What is the best way to sequence the learning of skills, both the new "repertoire" skills and the old style/audience skills? What is the basis for excellence in the new collage/event document? Key pedagogical items appear to be the learning support group, the usability test, and projects that assume electronic know-how, thus requiring students to discover effective software/hardware manipulation on their own. Emphasis is on the writer, who draws on an internal web of resources to create.

While the needs are apparent, the textbook field itself changes slowly. A prevailing theme is, If it worked in the last edition, do it again. Part of our job is to educate ourselves, our students and our editors to the need for the new type of text that must emerge.

Erasure, Encroachment, and Assimilation: Examining Representations of Graphic Design in the Technical Communication Curriculum

Clay Spinuzzi **Texas Tech University**

One important and rapidly growing part of the technical communication curriculum is that of *visual rhetoric* (sometimes approached under the rubrics of page design, visual design, visual communication). Visual rhetoric has become a component of basic technical communication courses (supported by chapters in our textbooks) and is even the focus of entire courses (supported, of late, by specialized texts— see Hilligoss; Kostelnick and Roberts; Schriver).

It's good for our students to be well grounded in visual rhetoric. But I'm concerned that the texts and text chapters provided by our discipline tend to represent the practice of visual rhetoric in quite limited ways. In particular, these texts and text chapters tend to make scant mention of *graphic design*, a field that has traditionally made visual rhetoric its central concern. The field of graphic design is dealt with in three ways in current texts: (1) *erasure*—texts give little or no indication that graphic design exists as a field and imply that technical writers should have sole authority over the design of their texts; (2) *encroachment*—texts acknowledge the field of graphic design, but suggest that writers should and can take over traditional graphic design duties, displacing trained designers; (3) *assimilation*—texts acknowledge the field of graphic design and advocate partnerships between writers and designers, but interpret the field of graphic design in ways that implicitly assert the dominance of writing.

Each approach has negative consequences for the traditional workplace division of labor between writers and designers. This division of labor, in the best cases, allows workers from two different, deeply rhetorical traditions to share the rewards of those traditions— to draw on very different perspectives, methodologies, and philosophies as they collaborate on projects (Mirel, Feinberg, and Allmendinger). It allows writers and designers to specialize in their respective jobs, yet pool their strengths. But current technical communication texts may discourage the traditional division of labor by representing the writing-design relationship in terms of erasure, encroachment, and assimilation:

1. **Erasure**— By not making students aware of the field of graphic design, textbooks avoid teaching students about the traditional division of labor. Thus, students may not learn strategies for drawing on the strengths of graphic designers.
2. **Encroachment**— By teaching students to take over traditional graphic design duties, texts may lead students to believe that they can perform graphic design duties as well as trained designers. Such training may lead writers into conflicts with graphic designers in the workplace. Worse, it may lead writers to believe they are— and to represent themselves as— suited to perform jobs for which they are not thoroughly trained (such as creating logos and identities).
3. **Assimilation**— By representing graphic design logocentrically, texts may lead students to assume that graphic designers share their goals, assumptions, and writing-centered view of their work. Such training may lead to uneasy writer-designer collaborations and possible conflicts.

How can we diversify representations of graphic design work in our classrooms? I suggest three ways:

1. Studying graphic designers at work
2. Examining artifacts and literature of graphic design
3. Inviting graphic designers to represent themselves

These three solutions, I suggest, can serve as important supplements to our current texts, diversifying representations of graphic design in ways that will better equip our students to understand the traditional division of labor; draw on strengths of graphic designers; and understand the limits to their workplace roles.

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The Technical Communication Curriculum: Beyond the Humanities Model

Thomas Barker **Texas Tech University**

The purpose of this paper is to address the curriculum in technical communication as a model of training and education for students. In response to the theme of the CPTSC conference this year, I would like to look at a past model of curriculum for its benefits and its limitations. I will then examine ways that the curriculum might change to meet the needs of students and the profession of the future.

Although our program at Texas Tech has many strengths and attracts excellent students and faculty, the more I'm involved in it the more I'm aware of ways it holds on to a humanities vision of education and misses opportunities as a result. While we attempt to familiarize students with "the field," the program needs more "industry involvement." One student remarked to me that she was sorry to disappoint us by not going into "technical communication," but that she had this great offer to do multimedia training and consulting instead. Isn't that a field of technical communication? Another student, just at the point of graduating, remarked to me that she hoped she'd never have to write a manual. Manual writing may not be for all professionals, but it's a key activity of the profession. Beyond industry involvement, students also have a great insecurity about tools, thinking that RoboHelp, for example, is their key to getting a job and not their skill in analysis of a software system or design of a help module.

But the greatest difficulty students have is that they have to complete their capstone course the last semester of their senior year. This means that the crucial skills of writing or technical editing— the ones that they need to know best to get a good job— they don't learn until they're also pressed to go on the job market. They can't put a portfolio together because they haven't finished their course work yet. Because they haven't finished their course work they can't take the time they need to promote the program. While others might find the key difficulty here in other areas, I find it in the model of the curriculum that in many ways doesn't meet their needs. I find myself continually confronted with the paradox of serving a growing and "hot" profession, with high salaries and good job placement, but little demand from students or students who come to us reluctantly after they've failed as MIS majors or engineers.

As a case study, I have spent time examining the program in which I teach and which I helped design some 14 years ago. I must confess that my analysis reveals a number of problems, but the most evident to me is the model on which we built the program in the past: humanities, or more specifically, the English curriculum as we knew it in universities during the 60s and 70s.

The academic model of humanities I have in mind is a) highly linear, b) canon-based, and c) geared toward a model of liberal education that goes back to John Stuart Mill and John Henry Cardinal Newman of the Victorian era in England. As a linear curriculum it emphasizes building on pre-requisites and marching steadily from easier to harder courses until graduation. However, much research about learning emphasizes that learning is consensual and that, motivated by their interests, learners often move in fits and starts, adapting their learning to their professional goals. Furthermore, because English and humanities is traditionally based on a canon of selected texts, the students get the idea that the discipline itself lives in certain books (as represented, for example, in reading lists for graduate students). But in the technical areas often the "discipline" is technology itself, or the business enterprise surrounding it in the workplace. So far from having students seek wisdom in print literacy we gear them towards "workplace literacy," strongly suggesting that the "text" resides in organizations and industries.

This broader view of the source of knowledge leads me to consider models for technical communication education that look much more like those in engineering and medicine than in humanities. In these disciplines much more emphasis falls on projects at the end of the curriculum, with the heavy duty content courses falling in the junior and early senior year. Many of my engineering students in the service course, in fact, seem to spend their whole last semester in suits carrying around resumes and missing class. They have a much stronger sense of the profession than technical communication majors have. The curriculum in these practice-oriented fields, too, has a greater sense of being based in the surrounding context of learning. They emphasize internships, co-ops, and the transfer of faculty from industry to academia.

In my view, a curriculum modeled on these disciplines offers a number of benefits. Students can gain an increased sense of "professionalism" that can help them make the transition to the workplace more easily. Additionally, students who take electives the last half of their senior year have time to speak out about their learning and their professionalism and can make effective recruiters at lower levels. (Recruitment at lower levels— high school and first year— is one of the keys to making any new curricular model work.)

Finally, a shift of curriculum towards the models offered in these fields can equip the students with a stronger sense of themselves as a professional, which in turn builds loyalty and a sense of continued, life-long involvement in education and learning.

Mending Walls and Adding Gates: Intradisciplinary Collaboration and Building Programs that Work

Jim Dubinsky **Virginia Technological Institute and State University**

In Frost's "Mending Wall," two farmers come together at spring mending-time to "set the wall" that has been damaged over the winter. They work together, but they "keep the wall between [them]" because one "is all pine" while the other is "apple orchard." The poem is a meditation on, among other things, the need for individual space and boundaries. An irony is that the narrator questions this need while working industriously to repair the wall (he is, after all, the one who lets his neighbor know that it is time for repairs to begin).

My talk is about building an undergraduate program in professional writing within traditional English departments devoted to literary studies. I argue that in order to do so within such departments, in whose fields we often see scenes similar to the one Frost described reenacted, we must be willing to mend walls and add gates. The need to add gates is essential because in many departments the various faculty (i.e., literature, composition, technical communication) see themselves as "all pine" or all "apple orchard." When they communicate, they do so warily, keeping certain walls (physical and psychological) between them. The space between the characters in the poem and concomitantly between members of such departments is a kind of "no-man's land." Space of this sort between literature and other fields, particularly those with a "service" stigma (i.e., composition and technical communication), has been well documented by scholars, who, appropriately enough, resort to martial metaphors.[1]

The imagery in "Mending Wall," while not exactly martial, has martial overtones, an argument I've made elsewhere, which makes it appropriate as an opening analogy.[2] But I didn't choose "Mending Wall" solely because of its imagery; I also chose it *because* it is a poem and *because* one of the important issues Frost seems to be raising is a rhetorical one: language use— what and how to say something.[3]

Choosing a poem as an opening gambit in a talk about working with literature faculty makes sense; it is the "coin of the realm" so to speak. Equally, if not more importantly, given that I'm addressing technical communicators, poetry is perhaps the one genre that, while initially seeming to be quintessentially literary, is also quite "technical" because it relies on elements of design, particularly poetry such as "Mending Wall" that is not free verse. Frost's poem relies on careful arrangement and style; it meets certain formulaic requirements (yet is not tied to them).

The poem is also about one of the key issues for English faculty of all stripes— language use. When the speaker muses that "I could say 'Elves' to him, / But it is not elves exactly, and I'd rather / He said it for himself," he is facing a problem that all humans face when addressing an audience— deciding what bit of language to use in a given situation. One of the interesting points to note in the poem, particularly when thinking rhetorically about what kinds of evidence or examples the speaker might use when addressing his neighbor, is that the speaker chooses to focus on differences. Not once during his meditation does he talk about commonalities (i.e. both apple and pine are types of trees; both men are farmers; both have probably lived in the area for many years, enduring similar hardships).

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[1] Theresa Enos describes departments as having "armed camps" (11). Richard Lanham uses several war metaphors in describing the space, calling the gap a "disciplinary Maginot Line" (16). Such terms are not new either. For instance, Lyle Spencer, a professor of English in the early 20th century, referring to a young instructor, said, "He has been taught, if not by precept, certainly by example, that composition is menial work, drudgery, a pursuit to be avoided. He has been taught to look forward to research work. The vision held before him has been that of scholarship. . . . In calamity of our present-day composition teaching that our instructors are— the majority of them— not only without special training in their subject, but using the work merely as a stepping-stone for advancement. They do not expect to teach composition always; their interests are in other lines of work; and they either are only filling in, waiting for a man higher up— in Shakespeare or eighteenth-century literature of Middle English— to die, or else are teaching the subject only until they can get an assistant who will take what is regarded by them as menial work" (Connors 196). For more examples, see Russell.

[2] Dubinsky, James M. "War and Rumors of War in Frost." *The Robert Frost Review* (1995): 1-22.

By focusing on difference when similarities exist, Frost's poem mirrors not only the physical space but also the psychological space that exists in English departments between literature and technical writing. All too often, within English departments as over fences in New England, the commonalities between/among fields are ignored. Consequently the inclination among colleagues from different fields (literature, technical communication, composition, and creative writing) to separate and distinguish, to mark differences instead of similarities, becomes the driving force. Walls are put up, and when there are "gaps even two can pass abreast," seldom do parties meet to repair these walls or open up a dialogue to consider adding a gate or two. One reason is that neighbors aren't telling one another when it is time to "walk the line." Consequently, there is no collaboration because there is no communication.

My Position: Time to Walk the Lines

My position is that it is time "to walk the line": we must communicate and understand the needs and fears of our colleagues within departments of English. Creating programs that work requires a thorough understanding of many factors, not the least of which is the nature of communication. Faigley stresses that "communication is inextricably bound up in the culture of a particular society" (236). In technical communication, we have recognized this social perspective and have worked to create courses and programs that "work out the implications of social theory" (Thralls and Blyler 249). We look outward, gathering knowledge about the "roles, skills, and requirements of technical communicators' positions" in order to offer advice about program building (Zimmerman and Long 302). To make our courses and programs more relevant to the changing world of work, we think and talk about communicating across cultural boundaries (Corbett; Thrush) and those of gender (Durack; Flynn). But we don't discuss our "particular societies" or offer advice about how to cross walls within the confines of our departments (at least not in print). We don't talk about how those societies affect the construction, growth, and preservation of our programs. As evidence of this lack of communication, a brief search of *Technical Communication Quarterly* reveals nothing to those, like myself, in search of guidance.

Enacting My Solution By Building Gates with Rhetoric

At Virginia Tech, I am in the process of program building, and in order to open gates, I've been working to learn about the "particular societies" of my department. Following Peterson's advice, I have begun talking to my colleagues as I create an undergraduate minor in professional writing. In my conversations, I've learned that the department both wants and fears such a program. It wants the program because it is losing ground in terms of getting and keeping majors. In the past 10 years, the department has seen a 30% decline in majors while other departments in the college have seen tremendous increases (i.e., computer science has increased in size three-fold). It fears the program because it doesn't want to lose its identity, an identity that hinges, in part, on creating distinctions.

Solving the dilemma, bridging the gap, isn't easy.[4] There are questions and ambiguities involved. For instance, as Frost's speaker probes the complexities of the relationship, he wonders what he "is walling in or walling out." In the discussions I've had with my literature colleagues, I sense that they too have questions that might probe the complexities of a relationship that is nearly 125 years old, that they too wonder what they may be "walling in or walling out." However, for many of them asking and answering those questions isn't as important as maintaining distance to provide a space safe from potential threats, real or imagined.

Worries about potential threats seem real in both the poem and the department. In "Mending

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3. Rhetoric is often defined as a practical art about practical choices concerning what language to use when (see Lloyd-Jones, 22).

4. Many articles have been written about the gap between literature and composition, technical writing and literature, technical writing and composition, and even within the fields themselves. See Homer, Allen, Forman, Britton (to name a few).

Wall," just as the speaker begins to probe the complexities, he envisions his neighbor as a "stone savage armed" waiting in the wings to strike and take possession of his property. From my conversations with faculty, I sense that they see me, and by extension, all faculty who have different backgrounds, as threats. The martial images, and by extension, the need to provide a safe space, return.[5]

For those of us engaged in program building, we need to be aware that we are so perceived. To succeed, we must be prudent without being overly cautious. One way is to not "arm" ourselves with stones in order to repair the walls that exist year after year. Rather, we need to come to the walls carrying more domestic building materials for gates, assuring our colleagues that adding gates would be beneficial, particularly for the students who have to walk the fields.

In the past year, I've tried to build such gates, relying on rhetorical materials that my colleagues would recognize. Unlike Frost's speaker, one of my strategies has been to stress commonality, to point out ways that what we do in technical communication is similar to what our colleagues in literature do. In actuality, I saw few alternatives. Because each step in program building requires that I pass through the undergraduate curriculum committee, consisting entirely of literature, linguistics, and creative writing faculty, in order to communicate, in order to make any headway toward program building, I've had to build the gate using common rhetorical materials. Just as Bob Johnson appealed to rhetoric in his recent exchange with Patrick Moore to address a charge of too narrowly defining technical communications (in an intra-field dispute) and Jimmie Killingsworth turned to science fiction to "get around a big problem in technical communication theory and pedagogy," so too have I. I've been listening to my colleagues and studying their documents, particularly their syllabi and course plans.

In order to present clear course proposals that would demonstrate goals that both fields have in common, I created a master list of goals that my colleagues desired to achieve in their courses. In Appendix 1, I list those goals, which I've extracted from all the upper division syllabi in our department. In order to make them more "universal," I've taken out references to specific courses. My hypothesis is that nearly any program administrator in Technical or Scientific Communication could fill in all or nearly all of the blanks with courses from his/her program. Just as our literature colleagues do, those of us in technical and scientific communication study genres, style, theory; we analyze language; we ask students to create arguments.

By taking the time to create this list, I've followed one of the essential guidelines of rhetoric: know thy audience. Understanding the goals of the courses that my colleagues teach enables me to understand what they value. Thus, when I talk curriculum development with them, I can talk about courses in professional writing using terms they use; I can use their commandments, chapter and verse.

Creating the list is only half of the process; one must use that knowledge to effect change. Appendix 2 is a proposal for a course in critical reading and writing that I submitted recently, one that will fill a need that many have called for— teaching our students about the roles of documents/texts in our culture and the places that technology and science hold.[6] This course, "The Rhetoric of Disaster and Discovery," was approved recently. The chair of the undergraduate curriculum committee, a creative writer, told me privately that the proposal passed unanimously. She said that the goals (listed below) were clear, honest, and *recognizable.*

- to bridge the gap between professional communication and literature.
- to lay a foundation for future courses, one that our professional writing program can be built successfully.

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[5] In a number of conversations, I've been told that one of the biggest fears is that a program in professional writing will make the department so different that the literature faculty will have no place. Once English becomes aligned with other "utilitarian" departments, it will be "changed, changed utterly" (Yeats, "Easter, 1916"). In one conversation, I was told, jokingly, that if I continued along this path of curricular revision, I'd be walking into a minefield (he resorted to a military metaphor because of my military background). He suggested that I spend more time with my family because in the battle that would ensue, I'd find myself "scattered over the department in pieces."

[6] See Bushnell for instance.

- to provide students with a better understanding not the roles that language plays in the creation of knowledge.
- to help students conceive of the "culture" that derives from their "special work" (Earle, qtd. in Kynell 33).
- to help students in this field learn to function more fully as citizens.

When I submitted the course proposal, I didn't try to deny the distinction between education and vocation, between service and utility, which is one my colleagues maintain.[7] Rather, I was up front about my intentions; I was explicit about my goals, including them in the cover memo. More importantly, I emphasized the educational/rhetorical elements of the course that my colleagues would recognize. Overall, that emphasis was the most persuasive. According to my colleague, the committee appreciated that I used terms they understood (such as "analysis") and that I focused on student benefits. Taking a hint from Samuel Earle, who created a course in the Engineering School at Tufts in 1911 in order to give engineering students some "true culture" than came not "from turning aside to other interests as higher, but from so conceiving their special work," (qtd. in Kynell, 33) I didn't say "Elves"; I said rhetoric instead.

Whether or not we, at Tech, will be successful in keeping the gate open, only time will tell. However, I can say that at least one now exists because, unlike Frost's speaker, I didn't trust that my colleagues would choose not to "go behind their [parents'] saying" and stick with tired aphorisms such as "Good fences make good neighbors." Rather, I talked to them about the issues they learned from their "parents" in terms familiar to them asking them to reexamine those sayings. Consequently, I'm hoping that they will be willing to rely less on distinctions and binaries (such as literature/nonliterature, production/consumption, real world/academy)[8] and more on similarities (such as rhetoric). In so doing, they will come to their own aphorisms and a new paradigm, one in which good gates will make good neighbors.

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Faigley, Lester. "Nonacade[illegible] Writing: The Social Perspective." *Writing in Nonacademic Settings.* Ed. Lee Odell and Dixie Goswami. New York: Guilford, 1985. 231–48.

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[7] My colleague told me that the course was approved because it intellectually rigorous, that it belonged in the department because it seemed educational and not vocational. Russell and Kynell have elaborated on the roots of that distinction, one that has often led to perceptions I've described earlier.

[8] See Comley and Scholes for a detailed discussion of the need to break down these binaries.

Flynn, Elizabeth A. "Emergent Feminist Technical Communication." *TCQ* 6.3 (1997): 313–20.

Forman, Janis. Business communication and composition: The writing connection and beyond. *The Journal of Business Communication, 30* (1993): 333–354.

Frost, Robert. "Mending Wall." *The Poetry of Robert Frost.* Ed. Edward C. Lathem. New York: Henry Holt, 1969.

Fulwiler, Toby, and Art Young, eds. *Programs That Work: Models and Methods for Writing Across the Curriculum.* Portsmouth, NH: Boynton/Cook, 1990.

Horner, Winifred Bryan, ed. *Composition and Literature: Bridging the Gap.* Chicago: U of Chicago P, 1983.

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Russell, David R. *Writing in the Academic Disciplines, 1870–1990.* Carbondale, IL: Southern Illinois UP, 1991.

Thralls, Charlotte, and Nancy Roundy Blyler. 'The Social Perspective and Pedagogy in Technical Communication. *TCQ* 2.3 (1993): 249–70

Thrush, Emily A. "Bridging the Gaps: Technical Communication in an International and Multicultural Society." *TCQ* 2.3 (1993): 271–84.

Zimmerman, Donald E., and Marilee Long. "Exploring the Technical Communicator's Roles: Implications for Program Design." *TCQ* 2.3 (1993): 301–18.

Appendix 1. List of goals/objectives for 2000, 3000, 4000 English Courses

Spur students' interest in literary and textual studies and give them a critical vocabulary

Improve surface features and style of students' prose

Improve students' skills in revision and editing

Teach students to become better judges of quality in writing

Improve the depth and sophistication of students' analytical writing

Sharpen students' writing and thinking skills through writing

Sharpen students' thinking skills through extensive discussion

Heighten students' awareness of the varied and sometimes contradictory assumptions individuals bring to acts of reading and writing

Impart specific strategies for reading difficult literary texts and critical analyses

Help students identify and develop a literary aesthetic

Cultivate critical writing and thinking skills

Introduce students to a variety and range of specific types/periods of literature

Introduce students to a wide range of genres and styles within which [genre] writers work

Introduce students to critical strategies for reading [genre/period] texts.

Examine a variety of texts in various genres and media

Teach students to develop, organize, and substantiate critical arguments

Situate texts within specific social and historical contexts

Introduce students to the ways in which race, ethnicity, gender, sexuality, class, and other markers of difference inform texts and habits of reading

Enrich students' understanding of how texts "converse" with each other

Frame some issues about which texts converse

Introduce students to a variety of critical approaches to give depth in understanding

Help students inculcate humane values central to liberal arts: discriminate among alternatives, make sound moral choices, be a critical member of their society, free themselves from ignorance, prejudice, and provincialism.

Investigate different creative forms

Study how literature reflects the period
Study specific genres
Identify cultural, political, and aesthetic issues relevant to [period/genre]
Advance students' capacities for reading and speaking and writing about [genre] with understanding and imagination
Understand difference and distance and gain insight into the ethical issues involved with engaging an "other," as opposed to simply knowing about people
Give students perspectives on themselves and American society by experiencing the "otherness" of books/films and worlds represented in them
Help students become familiar with techniques and conventions of [genre/period]
Help students become aware of what in language touches them and others
Teach students to wield the tricks of the trade
Help students develop keener appreciation for pleasures and pains of genre/period
Teach students to adapt their writing skills to meet demands of changing technologies
Illustrate that writing is situated action
Help students understand forms, methods, and issues related to [context/period/genre/culture]
Analyze communication situations fully
Teach students to design clear, persuasive, and accessible documents
Help students to develop a clear prose style
Study examples of ______ writing
Introduce students to formal and functional study of language
Help students to understand the concepts of language change
Teach students to analyze linguistic and organizational properties of language
Demonstrate understanding of process of scientific inquiry with respect to language
Teach students the notions of grammaticality, prescriptivism, descriptivism
Teach students to produce a well-crafted argument
Introduce students to rules so that they can break them
Teach students to mine successful habits of writers so that they can break them
Hone students' writing skills
Examine what happens when everything that a society knows and believes varies from reality
Study thematic approach to ______
Study radical and influential writings of ______ movement
Investigate three genres of ______
Examine how a range of ______ deal with similar materials
Increase students' understanding of these [genres/texts] and the contexts in which they were written
Explore [texts] in the context of contemporary [theory]

Special Topics Course Proposal

English 3984/4984: The Rhetoric of Disaster and Discovery

DATE:	30 September 1999
TO:	Undergraduate Curriculum Committee
FROM:	Jim Dubinsky, Assistant Professor of English
RE:	4984/3984 Course Proposal (The Rhetoric of Discovery and Disaster)

To bridge the gap between professional writing and literature, I propose a Special Topics course in rhetoric: "The Rhetoric of Discovery and Disaster." The focus will be on what Quintilian called "historical narratives." This intra- and interdisciplinary course has the potential to attract students who consider themselves literature majors, as well as students in fields of science, business, and engineering.

At an institution devoted to creating knowledge and putting it to work, all students need to have a better understanding of the roles that language plays in the creation of that knowledge (the processes of discovery) and the failures or disasters that result occasionally when language use or communication fails. They also would benefit from an examination of the uses of language in the representations of these discoveries and disasters.

In this course, students will learn to analyze and critique scientific and engineering documents, business communications, and representations of events resulting from the discoveries or disasters associated with these documents and communications. In addition, they will gain a clearer understanding of the rhetorical value of style, arrangement, and delivery.

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Consequently, they will be able to function more fully as citizens within our society and be more competent rhetoricians, regardless of their chosen profession.

Rationale

In order to build bridges between fields within English language studies (literature, linguistics, technical communication, etc.) and to offer a course that would serve a wide audience, I propose "The Rhetoric of Discovery and Disaster," a Special Topics course that could be offered at either the 3000 or 4000 level.

All too often, other fields within English language studies see technical writing as "merely" instrumental discourse, which is "nonrhetorical," "antihumanistic," or "uncomplicated." Those who teach it are seen as corporate trainers, functionaries of a capitalistic hierarchy with no scholarly interests and no desire to participate in the "true" purpose of higher learning.

Many of us teaching in the field of Technical Communications resist these labels and do so for good reasons. While we recognize the need to prepare our students for the workplace, we also know that the workplace benefits from a critical perspective, one that comes from informed, socially conscious workers. We know, often because we've been in the workplace, that the employees who are most satisfied are those who contribute not just to the financial success of a company or organization but to the general well being of it and its employees. Most of these contributions involve or come from effective uses of language.

Thus, we have come to understand that to create what Quintilian called the "ideal orator," a person who is informed and willing to engage his or her society in dialogue over critical issues, we need to help our students understand the power of language and its many uses. One of the many goals often discussed in technical communication literature today is the goal of giving our students choices to enable them to contribute to the definition of their workplaces rather than ceding that role to others.

This course, a course in critical reading and writing, will enable students from all fields to participate in an "articulation view" of communication theory rather than a "transmission view." In an articulation view, technical writers become *authors*, and have the ability to create meaning rather than simply reproducing it.

To this end, we will study cases where the seekers' passion for discovery and the search for what is unknown combines with the more human motivations of ambition, pride, and glory. A careful examination of the documents contributing to/making up these events, as well as a look at the way the events have been represented in our culture, will reveal choices and obligations of authors facing the pressures and uncertainties of success in large scale and high stake human endeavors.

Texts

The texts introduce students to similarities and differences in communications in discourse communities as diverse as engineering, law, science, and politics. As they study the documents, students will gain analytic and problem-solving skills needed to negotiate work contexts. This wide-ranging work in the humanities, natural sciences, technology, and social sciences will help them to develop the skills, vocabularies, and methods of thinking that enable the accomplished writer to translate technical information into effective communication. As they study the representations of these incidents, students will gain insight into the roles language plays in the creation of cultural and historical meaning. They will also witness pressures within communities that are not readily visible to those who are not members (a good example is the Challenger launch and the pressures brought upon the engineers by management).

Endurance Expedition to Antarctica

Shackleton, Ernest. *South: The Endurance Expedition.* New York: Signet, 1999.

The Endurance: *Shackleton's Legendary Antarctic Expedition*. 1999. American Museum of Natural History. 29 Sep 99. http://www.amnh.org/exhibitions/shackleton/

Ecological Disaster in Woburn, Massachusetts

Harr, Jonathan. *A Civil Action.* New York: Vintage, 1996.

A Civil Action. Dir. Steve Zaillian. Perf. John Travolta and Robert Duvall. Paramount, 1998.

A Civil Action: Sources. 14 Jan 99. Marion Gould Gallagher Law Library. 28 Sep 99. http://lib.law.washington.edu/ref/civilaction.htm.

Space Shuttle Challenger Disaster and NASA

Trento, Joseph. *Prescription for Disaster.* New York: Crown, 1987.

The Challenger Disaster. 30 August 1999. Online Ethics Center for Engineering and Science. 25 Sep. 1999. http://www.cwru.edu/affil/wwwethics/moral/boisjoly/RB1-0.html.

Discovery of Cold Fusion

Mallove, Eugene F. *Fire from Ice: Searching for the Truth Behind the Cold Fusion Furor.* New York: John Wiley, 1991.

In addition to the texts listed above, I will include a packet of readings about the incidents, rhetoric, and the individual's role in society. I've listed a few readings below:

Covault, Craig. "O-Ring Documentation Misled Managers." *Aviation Week and Space Technology* 24 Mar. 1986, 26.

Pinch, Trevor. "Cold Fusion and the Sociology of Scientific Knowledge." *Essays in the Study of Scientific Discourse.* Ed. John T. Battle. Stamford, CT: Ablex, 1998. 73-89.

Rowland, Robert C. "The Relationship Between the Public and the Technical Spheres of the Argument: A Case Study of the Challenger Seven Disaster." *Central States Speech Journal* 37.3 (1986): 136-46.

Taylor, Charles. "Science as Cultural Practice: A Rhetorical Perspective." *Essays in the Study of Scientific Discourse.* Ed. John T. Battalio. Stamford, CT: Ablex, 1998. 89-104.

Winner, Langdon. "Do Artifacts Have Politics?" *The Whale and the Reactor.* Chicago: U of Chicago P, 1986. 19-39.

Objectives

- Help students understand the power of technical communication to influence perceptions and behavior in the workplace;
- Explore the complex relationships among the ethical, practical, and productive aims of communications;
- Examine significant literary depictions of scientific and engineering achievements to develop an understanding of textual, grammatical, linguistic, and historical styles that have been used to convey scientific and technological events and achievements to society;
- Illustrate that documents (and therefore writers) create meaning; technology and science are not neutral but function within social, political, historical, and cultural contexts or "narratives";
- Develop writers' ability to negotiate current work contexts and the analytic and problem-solving skills needed to keep pace with cultural and technological change.

Assignments & Evaluation

- Five one-to-two page responses to the assigned texts. These responses will summarize the text and attempt to make connections to other texts, events, or issues **(25%).**
- A proposal for the final project that includes a short, 2–4 page summary and an annotated bibliography of at least 4 items **(25%).**
- A final project that includes an oral report **(50%,** with **10%** assigned to the oral presentation). This project could take a number of forms (to include film or multimedia); regardless, there will be a written component. If the student chooses a written project, the minimum length would be 10 pages (not including appendices).
- The subject matter would be—
  - * an issue or theoretical concern relevant to public interest;
  - * a historical or rhetorical study of a discovery or disaster we haven't studied.

My Students or Yours?
Escaping the Service-Department Role

William Macgregor **Montana Tech of the University of Montana**

Many, if not most, PTC programs have emerged out of a service/support function on various campuses to assume a role as independent (or at least separately identifiable) academic programs. As such, PTC programs, and CPTSC, have sought to characterize themselves in professional terms, with clearly definable responsibilities in various domains of skill and knowledge, and with defensible authority to certify and support the quality of work done in the discipline. Yet the roots of the field are strong and deep: for most of us, the bread and butter courses that sustain our programs are the service courses offered to support the various professional and preprofessional disciplines on campus: scientific, engineering, medical, legal, and so on.

As we ponder the future of academic programs in PTC, we must confront our past and consider how our service-program roots may shape our future program designs. Where resource considerations are not an issue, the question may be insignificant. But where programs confront significant constraints on budgets for faculty, operations, and facilities, we face choices that often come down to choosing to support the service function OR to support program functions. Posed in this way, as an either-or issue, programs must balance short-term needs against long-term survival and growth, and given this choice, short-term needs usually win out.

In this situation I would assert that formulating such a choice is specious, itself a result of tactical rather than strategic thinking. It grows out of circular traditions of academic structure and academic politics, in which, respectively, identity and stature are measured by one unit's independence from other units, and the goal of structural independence is the freedom to pursue one's own programmatic interests— the old self-serving circle of the ivory tower.

I take the position that a strategic approach to PTC program design recognizes that—

- the multi-disciplinary nature of PTC programs assumes an interdependence that always already violates the sanctity of academic territorial boundaries;
- the future of the profession lies in embracing this paradox by opening the borders of other disciplines to engagement with ours;
- other disciplines are actually ready for such rapprochement; and
- PTC program growth, stature, and independence— and thus professionalism— come more readily, and gain more staying power, through developing strategic linkages— interdependences— with other programs than through the path that leads to professionalism via the traditional academic isolationist route.

Implications and issues of relevance here include clientele (whom do we serve first / most?— our students?— our colleagues?— our public?); a new model for academic structure and politics (how can service to program clients best be delivered? How can research and scholarship be made more [consistently] relevant? How— and when— should discipline-specific knowledge and skill be gained through extra-disciplinary contexts?); new models for program evaluation (when the discipline-specific walls are taken down, what measures are used to maintain program quality?) program resource growth through strategic alliances; and overcoming the service / servant paradigm.

Training vs. Education: Technical Writing Programs within the Traditional English Department

Michael A. McCord **University of Nevada, Las Vegas**

The decade of the 90s ushered in enormous changes in the U.S. economy that have had a dramatic impact on higher education. It was during this decade that new, knowledge-based industries began to drive, and in some cases, replace, traditional service and manufacturing-oriented industries. At the end of the millennium, this revolutionary shift toward a knowledge-based economy is largely complete, though there are almost unlimited opportunities for significant growth in many sectors. Of course, this transformation has brought important changes to colleges and universities as they begin to accommodate students and to adjust curriculums in areas such as computer science, engineering, business, and communications. During other similar changes over the past two-hundred years, English departments have been largely immune to such economic pressures. Historically, an undergraduate degree in English Studies has not, for the most part, represented a marketable skill. Instead, the undergraduate degree has been a gatekeeping document that allows the holder to pursue graduate study. That is changing.

This change involves technical communications. While the information technology (IT) sector contributed one third of all U.S. economic growth between 1995 and 1998 (Miller, 2), many analysts expect this growth to accelerate over at least the next decade. While IT professionals generally create and configure or program hardware and software, there is an increasing need for technical communicators who can provide content for online information delivery. The results of an ongoing study which I reported at a recent Rocky Mountain Modern Language conference indicate that there were 4409 technical writing positions advertised nationally during the four-month period from late May, 1999 to early October, 1999 (McCord). Almost evenly-split between full-time and contract positions, this figure supports the Bureau of Labor Statistics prediction that the number of technical writing positions will grow at a rapid rate of 21 to 35% per year and that the continuing job outlook is especially good for technical writers (BLS).

As this trend in the technical communication profession continues, faculty at a number of universities are beginning to think about ways to prepare students for work in the technical communications field. Because of such rapid changes in the workplace, many colleges and universities now offer certificates in technical or professional communications.

While a certificate program in technical communications may be worthwhile at many institutions, the work that goes into creating such a program can be a difficult, time-consuming endeavor. Not only must faculty, either individually or in committee, research and evaluate the components of such a program in relation to the institution's overall needs, requirements, and goals, they must think about the potential impact on the department, on the community, and, most importantly, on the students. Faculty must also be aware that there is a very real possibility that they may have to navigate within a politically charged atmosphere as they accomplish this work. The political aspects of creating a technical communication certificate program are particularly important since they not only influence individual careers, but also because they can have a great influence on the pedagogical assumptions that locate and direct the program within the English department and within the university.

This has been my experience at the University of Nevada, Las Vegas, where we are currently developing our own technical writing certificate program, but I believe these issues are pertinent to those at other institutions as well. I have discussed this with faculty who are currently working to expand or develop certificate programs at several other universities and many of them describe similar experiences. While English faculty and university administration at UNLV have been overwhelmingly helpful and supportive in creating the certificate program, colleagues at a few other institutions have described to me significant resistance by faculty members and uncooperative administrators.

The certificate in technical writing seems to many of our faculty an ideal way to attract students to the major in a responsible manner that is guided by recent MLA suggestions (Gilbert). Our goal is to introduce a program that is intellectually challenging, such as the programs described in *Education in Scientific and Technical Communication: Academic Programs That Work* (Keene) and that can lead to rewarding technical professions for our students. But, the very fact that the certificate has the potential to lead not to graduate study but directly to a career is disorienting and disturbing for some colleagues, and this seems also to be a significant concern for faculty and program developers at other institutions with whom I have spoken and corresponded.

At many institutions, technical communication as a field of study exists in an odd space outside of literature and significantly removed from rhetoric and composition studies, a space that is oftentimes marginalized, both academically and politically. This can make asking for support to begin a certificate program a hard sell within English departments and within the administrative structure of some universities. Many of our colleagues don't know quite what to make of technical communications, and they sometimes aren't sure if they should support it as an intellectual field in its own right or if they should regard it more as an area of vocational training that is somehow less enriching for students, and therefore less deserving of support than the study of literature. Part of the reason for this is because, at many institutions, technical communication has existed more or less at the periphery of English departments, often as just a course or two that are taught by a single faculty member who often has other primary specializations, or by a couple of interested graduate teaching assistants or adjuncts.

The very recent move of technical communication to the forefront of professions in which an undergraduate degree in English, coupled with a technical communication certificate, becomes, in a very real sense, a terminal degree— a professional license of sorts— has taken some of our colleagues by surprise. This can have important, and sometimes undesirable political and programmatic implications. Some colleagues equate a career in technical communication with vocational careers like heating and air conditioning repair, plumbing, or automobile mechanics and think of teachers of technical communication not really as educators but, instead, as glorified shop foremen or language mechanics. From this perspective, a technical writing certificate actually "waters down" the respectability of scholarly work accomplished by the rest of the department.

The distinction that is sometimes made is the distinction between training and education; the logic seems to be that if a university curriculum can lead directly to employment, that sequence of study must be "training," as opposed to the "education" that takes place within a "real" classroom— within a sequence of courses such as literary studies that is intellectually challenging but that leads to no immediate professional goal. Some of our colleagues think we offer students "paint-by-number" or "fill-in-the-blanks" advice, and that technical writing is, essentially, an activity in which students fill out forms and generate pre-printed reports— that we as teachers have little more to do than show our students what a memorandum looks like or how to get the settings on their computers and word processing programs configured correctly. Others see technical communication as a field based entirely on practice and are generally unaware that there is a substantial body of theory that grounds our profession, or even that there are scholarly journals in technical communication.

These political attitudes, as I mentioned before, can make asking for support to begin or to expand a technical communication certificate program extremely difficult. For example, proposing additional faculty lines becomes problematic when existing faculty believe technical communication "training" courses are less intellectually rigorous than other, more "traditional" courses in English Studies and that technical communication courses can be easily taught by graduate teaching assistants and part-time adjuncts.

Some faculty are also fearful that a technical writing program that can lead students to professional careers will encourage large numbers of students to ignore traditional literary studies and to focus instead only on immediate professional development. They believe that students will eschew the "intellectual" path represented by the study of literature and, instead, will pursue a "vocationally-based" curriculum represented by technical writing. Of course, this idea can have significant political implications for those of us who teach technical writing, if, for no other reason, than because it can encourage literature faculty to guard their "turf." This, in turn, can lead to professional jealousies and, in some extreme cases, ill-will, though, thankfully, this has not happened at UNLV.

These perceptions can certainly have an effect on the pedagogy of the courses that make up the technical writing certificate. For example, faculty and administration may be unwilling to pay for professional journals that technical writing faculty and students need. In addition, when these viewpoints prevail, it can be extremely difficult to find the resources to build networked classrooms with up-to-date computer hardware and software. Of course, access to this expensive technology is not the only thing that drives technical communication pedagogical practices, but it is, nevertheless, important. So are the choices English department faculty make as they consider issues like providing release time for program developers, for example, or deciding who will teach in the technical writing classroom; these choices can be controversial and will certainly impact individual technical writing courses or the entire certificate program in fundamental ways.

The perceptions some of our colleagues have about certificate programs are not based on animosity or ill-will toward technical writing or those of us who teach technical writing. Instead, they are based on a misunderstanding of what technical communication is, and what we do in the technical communication classroom. In part, the viewpoints I have described above derive, in part, from the position technical communication has traditionally occupied on the periphery of the department where our colleagues simply did not have to think about it very often.

The purpose of this document is not to magnify or over-emphasize a "split" between technical writing and literature. Certainly a division between writing and literature exists to a certain extent at most institutions, though the significance of that division varies from campus to campus. Instead, what I hope to do is point out some of these concerns and then describe things we, as technical writing faculty, can do as we prepare to begin certificate programs at our own universities.

At UNLV, in addition to being an assistant professor of English who teaches technical communication, I have had to become something of an evangelist— a very persistent evangelist— a preacher of technical communication. I have been gratified to find that many *are* willing to listen. I serve on departmental committees where I have the opportunity to educate my colleagues, to help them understand that developing a program in English that is directly relevant to some of our students' career aspirations is a positive development that will not transform the English department into a vocational school or diploma mill. Once our colleagues understand that technical communication is not an intellectually-bankrupt enterprise, that it is, in fact, theory- and research-based, they often become enthusiastic supporters.

To help encourage this understanding, each semester some of my technical writing undergraduate students volunteer to undertake client projects with selected English faculty to help develop departmental or program web sites. In addition, a group of business writing students is currently working on a new departmental newsletter. In the process of these activities, UNLV students help to educate our faculty by demonstrating in a very concrete way the intellectual, creative, and technical expertise that technical communication requires. Of course, this is not the pedagogical *goal* of client-based projects, but it is a very nice side-effect.

As important as anything else in the process of educating my colleagues, I try to point to other excellent institutions around the country that have active composition studies and technical writing programs that coexist with vigorous programs in literary studies. Once our colleagues become con-

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vinced that a technical communication certificate program will not lure away huge numbers of their students, and, in fact, may even increase the number of English majors in their classrooms and seminars, they become much more willing to support such a program.

Finally, I try to encourage faculty members in the English department at UNLV to see themselves as stakeholders in the technical writing certificate program, to understand that they are important elements in the success of the program. I frequently ask for their input and guidance so that they can become part of the process instead of having an already-completed certificate program thrust upon them. Together, these methods help to move technical communication away from the periphery of English Studies and toward the center of a modern English department.

Just as the city of Las Vegas is changing to accommodate new technologies, so must our English department at UNLV, and the certificate program in technical communication is a way to do it that helps our students, the community, and the university. The department that expands its focus to include the ever-changing and growing world of science and technology reinforces its importance within the university rather than detracts from it. Our task as technical communication educators is to aid in the process of making technical writing an accepted and important part of our own English departments.

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Escaping "Two Cultures" Thinking in Technical Communication

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It has been forty years since C. P. Snow delivered his celebrated and controversial Rede Lecture, "The Two Cultures and the Scientific Revolution." Its subsequent publication provoked responses, both positive and negative, from all over the world. Snow himself admitted that to divide the Western world into two cultures— scientific intellectuals and literary intellectuals— was reductive. Yet, the argument maintained considerable heat for over ten years. Moreover, judging from the printing history of the book that resulted from Snow's lecture— at least thirty printings, including, most recently a new edition in 1993— it would appear that the thesis has not faded. Indeed, as Stefan Collini suggests, "Whatever reservations we may now have about the adequacy of Snow's original formulations, it is impossible to feel that the confusing and distressing period of history that divides us from the apparently more confident world of 1959 has rendered these questions any less urgent or any more tractable" (Collini viii).

Snow argued that the problems of the world were, at least in part, consequences of technological advances and that the only trustworthy solutions to these problems would be technological in nature. However, such solutions could not be discovered and implemented unless educated people were able to comprehend those technologies and how they might be brought to bear upon solving social problems. His "major theme," he insisted, was that "It is dangerous to have two cultures which can't or don't communicate.... Scientists can give bad advice and decision-makers can't know whether it is good or bad" (Snow 98).

Snow was a prolific novelist, even considered by some (philistines, in the opinion of F.R. Leavis) to be a modern classical novelist, yet his education— he held a Ph.D in chemistry— had been in the sciences and he believed that it was primarily the literary intellectuals who needed to change. With the exception of scientists, Snow argued, "the rest of western intellectuals have never tried, wanted, or been able to understand the industrial revolution, much less accept it. Intellectuals, in particular literary intellectuals, are natural Luddites" (Snow 22).

Snow's argument was reductive in his characterization of culture as divided between scientists and humanists, yet at least some of the interest the argument generated seems to have involved the suggestion that science and technology are cultural in nature. One might suppose this to have been "old news" considering the popular interest in a very similar debate carried on between Matthew Arnold and T. H. Huxley some eighty years earlier. And yet, we continue to see arguments urging us, first, to abandon the assumption that science and technology are somehow value-free and above culture, and second, to move beyond the notion that they are separate and distinct from the humanities.

Regarding the first concern, British political theorist, John Street, found occasion to argue as recently as 1992 that technology "can influence people's perception of the world they live in. This may not put them at risk, but it can profoundly change the kind of people they are and the way they think and act... .Technology can drastically alter cultural formations." (107).

The two cultures distinction has been a concern within our own field for at least twenty-five years. In 1975, Thomas Sawyer suggested that "perhaps it is now time to stop emphasizing the differences between these two cultures and seek some similarities between them which may serve as the starting points for negotiation and eventual cease-fire" (185–6). In 1989, Theresa Enos proposed a classical rhetorical perspective modelled upon Quintilian's example by means of which "we too can recognize rhetoric's usefulness in drawing technology and the humanities closer together by placing the voice of the individual and the good of society in a dynamic balance, the informing principle in humanist rhetoric" (95). And even more recently, Craig Waddell reminded us, echoing C. P. Snow, that "our ability to address successfully many of the most pressing problems we face today... requires sophistication in both scientific and humanistic disciplines. A few intrepid scientists have attempted to bridge the two cultures by venturing out of the field or laboratory and into the public-policy arena" (55).

Recently, however, I have come to believe that such assumptions may continue to underlie the values and attitudes of many technical experts and technical communicators today. Indeed, I believe that our own teaching and scholarship may be doing little or nothing to help students avoid misunderstandings and hostilities not unlike Snow's characterization of the two cultures. Our courses and textbooks may be perpetuating the conflict, perhaps most commonly by ignoring it, if not by tacitly accepting the assumptions of one side or the other. Therefore, I want to propose some preliminary ideas about how we might escape unhelpful two cultures prejudices in our pedagogy. My suggestions involve contextualization of technology and technical communication on two levels, disciplinary and personal.

1. Introduce students to perspectives from the history, philosophy, and sociology of technology and help them find ways to apply these perspectives in their professional practice.

In an advanced technical writing course required for students in industrial technology, applied computer science, and dietetics, we have explored philosophical and sociological perspectives that help the students understand such notions as the cultural and historical situatedness of technologies. This approach enables them to escape a prevalent belief within expert cultures that technologies are neutral. We have discussed, as well, the idea of technical objects as texts in themselves, a notion which has delighted my students because it authenticates both the common attitude among technical experts that such objects "speak for themselves," as well as their own specialized literacies in being able to read such texts.

These perspectives enable students to recognize the cultural nature of technology and to see technical communication as an expert practice in its own right, specializing in the unique problems of interpreting technical texts for nonspecialist users. Such insights enable them, on the one hand, to begin to understand the potential for isolation within expert cultures, and on the other hand, to see how, in cooperation with technical writers, they are able to engage in multiple cultural practices and discourses involving the "socialization" of technologies. In addition, they develop expectations for the appropriate knowledge and abilities they should be able to see in competent technical communicators.

2. Explore narratives and case studies of individual technical communicators in which two cultures conflicts are manifested, with the goal of finding ways to either circumvent or productively use such conflicts.

I am currently involved in a project with Dale Sullivan collecting narratives about a variety of work settings, written by technical communicators with a considerable range of educational and experiential backgrounds. In a number of these stories we encounter attitudes that reflect two cultures antipathies between technology experts and humanities-educated writers. Such narratives enable us to see both the clash and the reconciliation of beliefs and values between engineers and writers as they struggle to understand and to change each others' perspectives.

It is evident, as well, that their conflicting perspectives are strongly rooted in their disciplinary backgrounds— particularly their education. Such narratives can provide a starting point for some soul searching on our parts as teachers.

I want to emphasize, in fact, that this entire discussion needs to be understood as a proposed starting point. I'm here to propose that we begin talking about this concern, to consider what we may be doing that either perpetuates such difficulties, or that helps to avoid or move beyond them in cases where that happens.

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Future Purposes: Communities, Technologies, and Urban Program Design

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In his discussion of the history of technical communication, James Souther asserts that the profession of technical communication has been broadened by "three mandates requiring effective communication of technical information to the public": environmental legislation, the consumer movement, and the emergence of the personal computer. Souther's assertion suggests another type of "broadening": the diffusion of complex technologies throughout society and the dispersal of professional writers throughout the economy. Where once technical writers collected in a few industries and workplaces (e.g., aerospace, defense, super computing), writers are now in demand in a surprising number of industries, workplaces, and contexts. With the continued penetration of computer networks into the lives of many, technical writing will likely continue to look much differently in the future.

These changes in technical communications present a number of problems for program design:

- **Problems of identity:** Here we are interested in a number of questions related to who technical writers actually are. When workplaces need Web designers, for instance, do they think to hire technical writers? Or do they hire programmers and graphic artists. Most likely they hire an interdisciplinary team of "information architects" (and other oddly-named writers), programmers, and artists. But do they think of Web writing as, in fact, writing? Do they recognize the skills and training of technical writers as relevant and important?

  Another identity concern we have is related to technical writing work outside recognized "technical" industries and workplaces. We see considerable need for professional writers in sectors of the economy (e.g., non-profits), sectors that present significantly challenges for our curriculum, yet these sectors of the economy are off the map of technical and professional writing as a discipline and not part of a technical writer's identity.

- **Problems of diversity:** Here we are interested, as our first bullet point suggests, in gearing our curricula toward preparing students for a wide range of intellectual and workplace experiences and for working with people of diverse backgrounds. This, of course, is a concern of most writing programs, but ours is underlined by the fact that our students are already remarkably diverse and bring with them a set of experiences and expectations that necessarily influence our classrooms and program design.

- **Problems of time and space:** Here we are concerned with the ever present material constraints of an urban campus and a finite faculty within a traditional English department. The latter two constraints will be familiar to most, but we also must wrestle with the need to acquire space for classrooms and labs and offices on a vertical campus where space is at a premium. We can't be all things to all people, of course, yet we want to have ambitious goals and create a new kind of writing program despite these limits of time (we are on a quick schedule) and space.

While these problems and pressures are not unique to urban contexts, we are also struggling to incorporate into the design of our program issues that we think will be central to the future of technical communication, issues that are perhaps most visible in urban areas:

- The pervasiveness of technical communication practice and need within organizations, like community-based non-profits, that are currently invisible
- The increasing relevance of computers and networked communications to a wide-range of civic and social service activities, and therefore, a significant explosion in the number and type of users of technical communication products
- The diversity of students looking for coursework: a variety of workplaces, skills, race and class positions, and needs

We have few answers to these problems and see them as a productive challenge for imagining the future purposes of technical communication programs, particularly in urban settings. The purpose of our presentation will be to pose the challenges to future program design as we see them and then offer for discussion our vision of an urban technical communication program. Our position is that such a program ought to be marked by the diversity that drives it, which means a program designed to meet a number of purposes for a diverse range of students in a way responsive to the community in which the university and program is situated. The outline of this vision and program is composed of the following elements:

- An interdisciplinary curriculum with significant collaboration with programs in communications (e.g., video/multimedia), information technology, computer science, and urban planning/public policy (to name the most relevant to us)
- A diverse and active industry advisory board that will not only provide guidance but offer students a range of possible work experiences
- A broader vision of research and teaching to include writing in community contexts and curriculum to help prepare students to work in those contexts
- A broader vision of what counts as technical writing to encompass issues like risk communication, public policy planning, and other civic/social service areas of work
- A focus on computer and network-related writing activities that includes both the computer industry itself and the increasing diversity of users of these technologies

Specifically in our geographic location, the program can and should draw on the strengths of and prepare our technical writers for a complex mix of industries such as high-tech computer technology, telecommunications, banking and finance, as well as government and public policy groups and not-for-profit community-based organizations. Our urban location means that we have easy access to corporate, government, and community organizations for whom students can intern, work, or simply conduct class-based projects. Our institutional ethos lends itself toward an active program that makes alliances with industry and the community to train our students in real-world settings and to enhance the visibility of our program and institution in these forums. A corporate advisory board would serve to reinforce this institutional goal. Cooperative interdisciplinary relationships among campus units could serve to bolster needs we have as our program grows and expands. Out curriculum can benefit from the expertise of the programs and faculty in other areas (and, we hope, they from ours) and our students can benefit from their classes. Computer science, information technology, communications and urban planning/policy, for example, represent strong programs in other disciplines at our institution with whom we share both theoretical perspectives and practices.

Additionally, the landscape of the profession is changing and any program, especially a developing one, should be aware of these shifts. The world of a technical writer started as a more limited one in terms of disciplines and skills. Yesterday's writer who created/edited copy for software manuals, engineering reports, and military specifications is today these things plus potentially a multimedia information designer and communications consultant. The range of industries in which technical writers work has broadened to include those most prominent in our area (mentioned above) and many more. The explosion of networked technology and telecommunications has increased exposure of more people to technical information and thus increased the need for technical writers. This shifting identity ought to be reflected in the creations of more interdisciplinary programs with broader emphases in terms of types of writing, technology use, and industry connections.

What future technical communication programs look like will depend heavily (and obviously) on questions of identity. We are trying to think carefully about who we are in relation to changes in the economy, in technologies, and in the communities in which we are situated (and from which we draw our students). In response, we have outlined what we think is a broad and ambitious vision in an attempt to address problems of identity that will challenge most technical communication programs. We feel strongly that technical and professional writing as a discipline needs to confront (embrace, actually) this diversity, to become a discipline concerned with both the corporate and civic domains of written activity.

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Moving on Alone: Past, Present, and Future for the Two-Year College Technical Communication Program

Katherine Staples **Austin Community College**

Two-year colleges have consistently offered postsecondary education for those unwelcome in other American college and university settings, first providing education for Blacks, women, and school teachers in the 1820s. Later two-year colleges offered career training for new city dwellers, language and cultural education for immigrants, and education to support the unemployed in hard times. The "junior college" movement was developed in the 1920s to spare an American university system increasingly Germanic in its emphasis on research, scholarship, and disciplinary specialization the demeaning chore of teaching lower division courses— such as the service course in technical writing.

The long two-year college focus on access, application, and innovation which allows two-year programs to meet change nonetheless leads to certain assumptions on the part of our four-year and graduate brethren. Listserv conversation, journal offerings, and attendance at conferences (like this one) reflect not so much a deliberate exclusion as the tacit assumption that two-year college programs and faculty have little to offer a mature academic discipline. By extension, administrative, research, or even transfer and articulation agreements are almost impossible for two-year technical communication programs to establish with four-year or graduate institutions, which shun the stigma of a seemingly vocational and low level association.

Nonetheless, technical communication programs in two-year colleges are growing in number. Like other program types, they vary widely in focus and in quality. However, these programs are developing in isolation from existing programmatic models and outside the disciplinary conversation. Interestingly, two-year college voices and participation are welcome at professional organizations such as STC and IEEE. The collaborative practices of a communication industry dedicated to serving the interests and needs of users seems more kindred to two-year college programs than the competitive models of individual success in university programs, departments, and disciplinary groups. It is, after all, unrewarding to attempt to join a conversation which does not respect the work or values of its would-be members.

CPTSC began nearly thirty years ago when its founders established an open forum for programmatic conversation and collaboration. The founders of ATTW and CPTSC welcomed all new voices, recognizing that teaching, practice, and research all contribute to programmatic conversation. However, our discipline has matured. Or has it? It may be time for two-year college programs to found a programmatic and disciplinary conversation of their own.

Promoting Systematic Outreach to Established and Developing Programs in TSC: Taking Advantage of Past and Present Resources for Future Growth

William J. Williamson **University of Northern Iowa**

As a professional community we have several venues open to us for collegial exchange about issues of programmatic concern in technical and scientific communication. Many of our professional venues favor the framing of programmatic concerns in scholarly issues. Although these are significant to the future of the profession and its programs, we also need places where practical issues of program development can be considered seriously (preferably in connection with scholarly issues). Because one of the purposes of the CPTSC is to "assist in the development and evaluation of new programs in technical and scientific communication," this organization seems ideally suited to a project of systematic outreach to new and established academic programs.

My experience as a candidate on the academic job market in 1998–99 suggests that the kind of exchange I discuss here would be of interest to established as well as developing programs in technical and scientific communication. Programs across the country face similar challenges for developing new and existing curricula, faculty, and facilities, but most seem to have few opportunities to discuss these challenges with others. Several specific practical issues may generate interest among CPTSC participants. These include program design, program building, facilities development and management, student recruitment and retention, development of student organizations, positioning programs and graduates for the marketplace, building connections to and through professional organizations, developing and expanding community and professional outreach, and involving students in program management.

I propose that the CPTSC consider engaging in a systematic outreach project dedicated to bringing together representatives of new and established programs for the specific purpose of promoting focused, regular discussion of issues such as those I describe here. We might consider establishing some or all of the following strategies:

- Establish a program-building forum at the annual conference.
- Develop an annual program building workshop, perhaps to be held in conjunction with the annual conference.
- Designate a new member/program liaison who can correspondence with programs.
- Gather success and failure stories about program building strategies and periodically publish these to the CPTSC web site.

All of these strategies require systematic outreach on behalf of the CPTSC, which of course means added commitment of resources. However, there are many benefits for CPTSC's engagement in such a project, some of which serve the CPTSC directly, and others of which serve the broader technical and scientific communication community. By engaging in such a project we will contribute to the following goals.

- Promote the growth of our professional community.
- Provide regular opportunities to share experience.
- Provide opportunities to promote the organization and the profession.
- Build the membership of CPTSC.

Position CPTSC as the gathering point for a living ecology of technical and scientific communication programs.

Programs, Technology, and the World Wide Web

Programs and Technology

Moderator: Dan Riordan

Teaching Technical Writing in the Information Age
Anna Maria Amezquita and Linda Hays Welch

Technical Communication's Added Value in the Distance Learning Environment
Marian G. Barchilon

Should Technical Communication Programs be Offered Through Distance Education?
Suzanne P. Schneider

The Role of Technology in a Rhetorical Situation
Janice Tovey

Programs and the World Wide Web

Moderator: Deborah Bosley

Shell Game: Is a Web-Based Courseware Tool in Your Distance Education Future?
Kelli Cargile Cook

Web Design Courses: A Promising Future Role in Our Technical Communication Programs
Don Payne

Assisting Future Historians of Technical Communication Today: Toward A Less Ephemeral Web
Pete Praetorius

Technical Communicators as Web Designers and Managers: Implications for Academic Program Development in Technical Communication
Dale Sullivan

Teaching Technical Writing in the Information Age

Anna Marie Amezquita & Linda Hays Welch **San Juan Community College**

Technical writing instructors and institutions are facing constant changes in curriculum because of the rapidly increasing availability of information. Because of this we as educators must redefine our approach to instruction and curriculum coverage in order to meet these changes and the learning needs of our individual students. Also, these changes will create obstacles that we must overcome. These are the issues we wish to discuss with you.

To begin with, we need to prepare students for the world outside of academics. Our students need information applicable to their jobs, career goals, and studies as well as knowledge about how to use practical communication skills. This means, they must know how to use technology, gather information, and communicate. One author says, "narrow vocational training in one state of technology doesn't prepare anyone for technology changes" (Hirsch 26). For example, three years ago, students only needed to know about a paper résumé. Today we teach them how to produce a résumé that can be scanned; but, some businesses are already going to online résumés. Will our students know how to find this current information? As another example, our students will need to know how to find documentation guide updates on the Internet. Private industry has been and will be giving the learner what he wants, how he wants it, and when he wants it. We must do the same.

This also means that the role of the instructor must change from being the "sage on stage" to that of guide or mentor. We must teach our students how to define and fulfill their needs for information and communication.

Another issue is that we as technical writing instructors must develop course material to better suit the needs of the individual learner, since this is how most students will be taught in the 21st century (Dolence 27). As an example, we can have a student write a memo requesting a tool or item they might actually need at their particular workplace, instead of having all students write a memo requesting the same item.

These are the issues we would like to address: information as a communication skill and as a research skill, the instructor's role in teaching the individual learner, and the curriculum changes needed. This approach to teaching technical writing requires a new way of viewing the learner, the instructor, and the curriculum. So my friends, it is imperative that we rethink our current curriculum and begin to address our students' needs.

Issues to consider

- Are we now in agreement that we are teaching technical communication?
- Where do we draw the line between technical communication and the skills needed to produce the communication?
- What impact has the Information Age had on technical writing courses?
- Do you believe this current state of the Information Age is just transitional, or will it always be in a state of flux?
- What material should we be teaching in our technical writing courses?
- How should we teach this material?
- What role does technology play in teaching technical communication?

Students' Needs

- Individualized instruction

  How individualized can we make instruction and still meet institutional objectives?
- Access to technology

  Do students have adequate access to technology?

Are we assuming that students have experience with or knowledge of technology? For example, e-mail.

- Practice with real life situations
- Access to information

  How do students keep informed of changes in information and communication?

Course Content Concerns

Ways of accomplishing individualized instruction and mastery. Examples, as follows:

- Units

  Memos
  Letters
  Resumes
- Simulations

  Interviews
  Collaborative reports
  Presentations
  Management
- Hands-on

  E-mail
  Web navigation
  Page design

Obstacles to Overcome

- Limited access to technology
- Large class sizes
- Resistance to change from the institution
- Semester session and length of time per class mentality
- Credit hour mentality
- Lack of mandatory placement

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Technical Communication's Added Value in the Distance Learning Environment

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Distance learning classes offer great opportunities for technical communication faculty. Students in this new learning environment not only depend on the clarity of instruction, but also on the instructor's written and oral communication abilities (via e-mail, telephone, and face-to-face interaction) to make them comfortable with this new medium. For example, students who take distance learning classes for the first time may be concerned about the technology, the subject matter, or even their roles in the class. Thus, technical communicators do more than just teach courses— they add value to the quality of instruction by creating a new type of classroom community, expanding the role of the student/instructor relationship, and enabling students to be comfortable in this new technological environment.

As we see more faculty on our campuses developing distance learning classes, we can expand our roles and work collaboratively with them to help them understand the important function technical communication plays in this new context. We also have the opportunity to work with staff, who both support these courses and offer technological expertise, to help them improve the entire information design process. Within this context, this paper will focus on a new distance learning class, Introduction to Online Communication, offered at ASU East in Spring 1999 in conjunction with the College of Extended Education (Distance Learning Technology unit).

Introduction to Online Communication Course

In Spring 1999 I offered my first distance learning class, Introduction to Online Communication. The class was the culmination of a year-long sabbatical project involving two objectives: to develop a methodology for future online courses and to develop one new online technical communication course.

By conducting research in online communication, information design, instructional design, instructional technology, and related areas, I attempted to design a course that was clear, accurate, and usable. As I developed the course material, and as I taught the course, it became evident that technical communication plays an important role in this new medium. Our ability to communicate information for our intended audiences means that we are intent on anticipating students' learning needs.

As I designed the course, my goal was not only to convey subject matter, but to think about how students use and find information. This meant that I tried to anticipate students' questions and organize and plan the course so that even first-time users would find navigation easy. Because my students came from a variety of disciplines and with a variety of experiences in distance learning, I tried to make locating information simple so that students would be able to focus on subject matter.

While teaching the course, I began to envision that our expertise in rhetoric, usability, and general information design issues, might play a larger role for other faculty on our campuses. While colleagues in other disciplines offer expertise in the subject matter they teach, they are often unaware of various information design issues they will confront in this new medium. Thus, I began to see that our expertise could help them develop more effective distance learning courses.

Moreover, my experience also reinforced that this new environment is communication-centered. Students need to feel a part of a classroom community, hearing the voices of other students, and they need to be reassured that an instructor will help them, via e-mail, telephone, or face-to-face, if that is possible. Further, for students who are new to distance learning, there is the need to be reassured in this new technological environment, and they will often communicate with other students, technical staff, or the instructor to gain comfort with the technology.

Conclusion

Since distance learning courses are information-centered and technology-based, technical communicators have the opportunity to play an important role in their development. In this new medium, our expertise in a variety of areas can enhance student learning and improve faculty course design. Thus, in many ways, as technical communication experts, we can ultimately help students learn and faculty teach in this new medium.

Should Technical Communication Programs Be Offered Through Distance Education?

Suzanne P. Schneider **University of Colorado at Denver**

Interest in distance education has grown rapidly over the last few years, and faculty in many technical communication programs are debating whether to enter this educational arena. Distance education, however, has sparked as much controversy as it has interest. David Noble, for example, who is one of the most scathing critics of distance education endeavors, has levied charges about online education ranging from DE programs being nothing more than digital diploma mills to concerns about intellectual property rights for faculty. My position is that in spite of these challenges, the potential benefits of extending the boundaries of the traditional classroom through technology outweigh the risks for those trying to implement a distance education program in technical communication.

The faculty in the Technical Communication Program at the University of Colorado at Denver (CU-Denver) helped pilot the first distance education classes at our university. In just a few years, the faculty watched distance education grow from four classes to a major program with 100 classes; the larger program was outsourced to a commercial course provider. In spite of the controversy surrounding the program, student interest grew, and distance education now is a permanent fixture at CU-Denver.

The Roots of Distance Education

Distance education traces its roots to correspondence study. As Michael Moore and Greg Kearsley observe in their study of distance education, its early history includes students who were underserved by traditional academic programs--women, those seeking specialized training, and those who could not travel to campuses because of family or work demands. This student profile matches that of many graduate technical communication programs, and distance education today can serve adult, urban learners who find that the virtual classroom allows them to combine professional and educational opportunities.

Using Technology to Encourage Active Learning

The emergence of electronic communication, along with the explosive growth of the Internet and web-based learning, helped correspondence study evolve into the virtual classroom. E-mail and groupware allow for increased communication among faculty and students, while the web integrates a wide range of media into the courses that are available to students. For technical communication students, the technological tools that they use in the distance education classroom match those that they use on the job. These tools also promote active learning, because the student cannot sit passively in the virtual classroom while the professor delivers the information. Instead, students must make the effort to log-on to class, search for information, and engage in threaded discussions with their classmates. Students who are accustomed to navigating the web or using a company Intranet will find that they use these same skills in the virtual classroom. As one student commented at the end of an online technical writing class, "the form reinforces the subject matter."

Increasing Opportunities for the Lifelong Learner

In many respects, technical communicators are lifelong learners because the knowledge base of our field changes so rapidly. Some estimates are that the half-life of technical information is about two and a half years. In other words, technical communicators, along with others in the technical fields, will probably be taking courses to update their professional knowledge about every two years. Distance education can offer one way for professionals to continuously update their knowledge without sacrificing their careers to do so. Distance education may offer the means to integrate the corporate and professional worlds.

Avoiding the Pitfalls of the Digital Diploma Mills

Program directors and faculty who are considering implementing distance education programs need to consider all sides of the issue because distance education programs that are not designed well can easily become digital diploma mills. Some administrators see distance education as a way to extend the "market" for education and might not consider the hidden costs in the online classroom. For example, it may take faculty more time, not less, to teach online. Distance education programs must offer adequate technical support for both faculty and students. Faculty may face hostility from their colleagues who believe that distance education cannot possibly maintain the same standards as the face-to-face classroom. And finally, faculty who have taught online might have difficulty in their promotion and tenure reviews since other faculty aren't sure yet how to assess online teaching.

In summary, technological advances such as the Internet and the Web offer a way for distance education to reach adult learners and promote active learning environments. Technical communication programs may consider using distance education as a way to extend education to working professionals. Distance education may be one way to integrate the corporate and academic worlds.

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The Role of Technology in a Rhetorical Situation

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Students in professional communication programs, as they search for jobs, face the challenges associated with new and changing technology. They ask questions about the computer programs, applications and languages they need to know. In turn, we in academia ask similar questions in order to prepare our students. It's not unusual to come across an online discussion about the technologies we should be teaching and the place of those technologies in the curriculum. We also know that technologies quickly become obsolete and we are perhaps better served by strategies for producing effective communication that incorporate, among other things, the choice of appropriate technology.

To understand how technology can best serve our communication goals, we need to think not only about the basic elements of communication—*ethos-pathos-logos*—but also about delivery, a canon of classical rhetorics seldom mentioned today. Delivery in ancient Greece and Rome referred primarily to the manner and method of public speaking. Communication was oral and the ethos and presence of the speaker was a prime consideration. The shift to literacy, culminating with the invention of the printing press, altered the delivery system and distanced the writer from the audience (Ong 1982). As a result of this shift, the integrity of the oral contract gave way to the primacy of the written one.

For many centuries the delivery system for communication was centered on the printed word, whether handwritten, typewritten, or typeset. We learned to recognize and expect conventions of print. The development of computer technology, especially the personal computer, has again changed our methods of written communication and given new meaning to the ancient canon of delivery. Writers of text can also be the designers, printers, and publishers if they so choose. Laser printers and desktop publishing applications provide necessary tools for creating and producing top quality documents from an individual's computer [Kostelnick, C. (1994). "From Pen to Print." *JBTC 8*, 91–117]. The software writers chose, the printer, type of paper, and other such decisions are all issues in delivery.

With the development of sophisticated online distribution systems, the notion of delivery is further expanded. A communication can be distributed through email to an individual or a listserv group. The world of hypertext has opened new paths of communication and ways of thinking (Latham 1993). We can put pages on the World Wide Web with open or limited access, and we can create CD-ROMs. The boundaries once imposed by the printed page have been replaced only by the limitations of our technology.

The challenge for us directing and teaching in scientific and technical programs is to provide future professional communicators with strategies and skills for making appropriate rhetorical decisions, including the delivery method. These skills should incorporate knowledge of technology. But we need to insure that the technology serves the audience, purpose, and scope of the project. Of course, learning different technologies is important for students and practitioners, but having a rhetorical need for choosing that technology will make both the learning experience and the resulting document more effective.

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Shell Game: Is a Web-Based Courseware Tool in Your Distance Education Future?

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Web-based courseware tools, like WebCT, are gaining popularity as institutions move to more uniform web-based distance education instruction. These tools integrate course design, delivery, and management into a single package or shell and offer instructors a customizable web interface. But does WebCT deliver when the course being taught is technical writing? Considering its advantages and disadvantages can help answer this question.

Advantages

For course instructors/designers, WebCT provides web site construction access anytime, anywhere. A designer needs only a password, a curriculum, and basic HTML abilities to get started. For designers more comfortable with web publishing software, WebCT has file transfer capabilities that make uploading web pages simple. Designers will also like WebCT's ability to track page hits, allowing them to streamline their web sites for maximum effectiveness. For the instructor, WebCT integrates web page presentations with asynchronous and synchronous computer conferencing through its chat, bulletin board, and email features. Along with the presentation and whiteboard features, these tools support distance collaborative work. Students will like WebCT's interface, which connects them to easily accessible instructional materials as well as a course calendar, communication tools, and grades. Program directors will appreciate WebCT's ability to create a consistent "look and feel" across courses. Because WebCT distinguishes between designer and grader, programs can use multiple graders for large sections, or courses can be taught by multiple instructors simply by installing multiple course copies on an institution's server.

Disadvantages

Despite these advantages, WebCT has considerable limitations, especially when the subject is technical writing. From a designer's perspective, WebCT seems tediously linear: designers upload every page onto the server then connect each page through WebCT's linear learning paths. Designers must delineate these paths, creating pages that promote page-turning. Although opening new windows moderates this problem and provides some flexibility, the designer risks losing less web-savvy students who may forget how to return to the shell. Expert web designers may also be frustrated by WebCT's shell limitations. To include .pdf and .rtf files in a WebCT site, the designer must link to an external untracked page. Expert and novice web builders alike may find WebCT's clunky HTML editing screens frustrating. Of all its disadvantages, however, its greatest disadvantages are found in its chat and presentation features. The chat feature has limited space for typing comments; this problem is compounded by its excessively fast scrolling speed. Like the chat feature, the presentation feature needs tweaking: it does not allow the critiquing capabilities we have come to expect from software more sensitive to writing instruction. These limitations make WebCT less hospitable for writing instruction than for courses with more objective (multiple choice) evaluation methods.

Implications

WebCT's advantages make it a viable option for programs desiring to combine collaborative work with presentational work and to create a consistent web presence across courses. For programs with instructors who are novice web builders, WebCT can offer an easy, if somewhat tedious, method for designing and delivering a course. If programs already have expert designers onboard, then WebCT has less to offer. These experts probably have already tackled the problems associated with integrating web page resources with web-based communication tools. For these experts, WebCT will seem less viable, even confining. Most importantly, programs considering a shell like WebCT must consider their pedagogical goals for distance courses: can these goals be achieved with limited communication tools? If they can, then WebCT may be a good programmatic option. If not, then WebCT should probably not be in a program's distance education future.

Web Design Courses: A Promising Future Role in Our Technical Communication Programs

Don Payne **Iowa State University**

Courses in hypertext— whether focusing on practical issues of World Wide Web authoring, more theoretical concepts of networked information design, or something inbetween— have eased their way into many of our technical communication programs much as the Internet has eased its way into our cultural life at the end of the twentieth century. Because such courses came into being so quickly and were linked so inescapably to developing computer technologies, it's easy to view them as academic fads and to question whether or not they'll play any lasting role in program design in the next century. I think they will. Why? To answer that question, we have to look beyond the surface content of such courses, beyond the attractiveness they have for new technical communicators eyeing the marketplace, beyond HTML, Java, Javascript, XML, or the latest programming flavor. We must look at the special ability of such courses to invoke the power of collaboration and the interdisciplinarity of the rhetorical arts.

Collaboration

The hybrid nature of hypertextual writing challenges students' notions of expertise, even students of technical communication. In web design courses they must face the unavoidable truth that they cannot become fully expert graphic artists, filmmakers, computer programmers, audio engineers, or any of the other multimedia specialists whose arts are critical to web authoring. The ideal hypertext author would be a Renaissance individual, skilled in rhetoric, music, art, typography, film, graphics, computer science, writing, editing, and myriad other disciplines. The actual hypertext author, by contrast, will likely have skill in a couple of these areas and supplement them by collaborating with others to produce effective document webs. This realization comes slowly for students in web courses, with effects that are sometimes humbling, sometimes liberating, but essential in developing a professional attitude toward technical communication.

The Rhetorical Arts

Time, space, and symbols are the native elements that the web author shapes into communication. Students who are attracted to web authoring typically approach it from the viewpoints of mastery or mystique. Those who feel confident in their mastery of one art-writing, programming, graphic design-expect that mastery to carry them as web authors. Those on the other hand who are lured by the mystique of dynamic web sites brace themselves for initiation rites into the arcane knowledge of PERL and XML.

What both types of students discover to their surprise is the rhetorical core that undergirds web authoring. They come to see that common principles of situated purpose, audience, structure, and emphasis transfer well from graphic arts to verbal arts to multimedia arts and that this rhetorical core supersedes the technology that most likely was their initial focus. I'm not sanguine that Richard Lanham's call (in *The Electronic Word*) for a unification of the "digital arts" through interdisciplinary curricular reform will breach the sturdy institutional walls that we've erected between disciplines, but in their modest way web design courses support the spirit of his call for reform. They provide a natural meeting ground between the ancient art of rhetoric and the contemporary science of information design. When Lanham traces the digital arts back to Italian futurism early in this century, he describes in Il Teatro di Varietà a concept that fits web design perfectly: "the conflation of the arts into a single theatrical whole."

Web courses may play the same synthesizing in our technical communication programs. If so, they'll prove to be no fad.

Assisting Future Historians of Technical Communication Today: Toward A Less Ephemeral Web

Pete Praetorius **Michigan Technological University**

I once read a news article that discussed the various incarnations of the arcade video game Pac-Man. The author explained that the technicians who serviced these machines would periodically up-grade the game to its latest version. During the upgrade process the old version of the game would be replaced (eliminated) by the newer version. The author was clearly disheartened as he noted that there was no longer a version of the original game of Pac-Man--not in the field or at the manufacturer. Although I am no fan of the game Pac-Man, I empathized with the historians of the future who, for what ever reasons, may wish to know exactly what the original version of this game looked like.

The historian's job is tough enough without contending with the systematic destruction of potential archival records. But such systematic destruction may now be more complete than it was in the world of print. Because web pages and other centrally housed documents can be replaced at one time, leaving no remnants of documents' prior versions, future scholars investigating the history of technical and scientific communication may end up with few sources in which to study.

I became keenly aware of the ephemeral nature of the web while working as the past webmaster for the CPTSC Web Site and a departmental program web site. While performing upgrades of either of these two web sites, I lamented the fact that I was destroying a source for the Elizabeth Tebeaux, Teresa Kynell, or Robert Connors of the future. Although I realize that some people champion the ephemeral nature of the Web, I believe that there are sound arguments for making records of web pages more permanent. In 50 years internet historians will likely have very few, if any, actual gopher pages in which to study. In addition, unless some archiving begins to take place, there will likely be few examples of what we now call a "web page." Although much will be written on how the internet forever changed technical communication, the sorts of examples that Tebeaux presents when illuminating Renaissance technical writing will likely be lacking.

Although future historians of the teaching of technical communication will likely be able to examine printed brochures, promotional web pages from this period will likely be absent. In an informal survey of archivists from the home institutions of participants of the 1999 annual CPTSC conference, only one archivist claimed to be archiving electronic material (web sites) in addition to brochures and other material printed on paper.

As academics in the field of technical communication, we are in a position to help preserve both academic and professional web-based material. First, we should take care to leave a lasting record of what our students are producing in the way of electronic documents and web pages. Connors points to surviving student papers and student and instructor notes in old textbooks when discussing the history of the American composition class--we should provide a similar record for future historians. In addition, we should also archive what our programs' web pages look like at different stages. If web pages are to replace promotional material and such things as institutional handbooks, then these pages should be archived when up-dated.

Second, we should also discuss with our students the possible archival role practicing technical communicators should be playing. As the number of smaller companies that hire technical communicators continues to grow, more technical communicators will be asked to wear the hat of records manager/archivist. Discussing the nature of these archival duties will go a long way in helping to preserve what otherwise be routinely deleted. Unfortunately, like the original version of Pac-Man, much of the historic web-based record, both in academia and in the workplace, is eliminated; perhaps with some deliberate planning, a portion of this material can be preserved.

Technical Communicators as Web Designers and Managers: Implications for Academic Program Development in Technical Communication

Dale L. Sullivan **Michigan Technological University**

James Porter says, "A new kind of technical writing job has emerged from this technology— the 'online information specialist,' the person whose area of expertise is building hypertextual databases" ("Legal Realities" 46). Robert Johnson argues that technical writers should "take on the role of interface designer" (*User-Centered Technology* 150). Both of these statements recognize the strong connection between emerging computer technology and new niches within the profession of technical communication. I believe that the field of technical communication is strategically placed to take advantage of a rapidly expanding niche, that of the web designer and manager.

This niche should bring increased recognition to our field and make our recruiting efforts easier. Whereas most high school students do not know what a technical communicator does, most now are familiar with the world-wide web, many have already published web pages, and many would envision the job of being a web master as something they would like to do. However, there are several things to consider before we decide to make web design a major focus. Consider, for example, the following questions:

- **Should web design be considered just another delivery system, one more thing like desktop publishing to add to the curriculum, or should it be a full curriculum itself?** If we make it an add-on to our curriculum, we will probably have to be content to emphasize page and graphic design, navigation pathways, and rhetorical and audience adaptations. If we consider it a major focus, we will need to place more emphasis on markup languages, network systems, and other computer science issues.
- **What kinds of professional fields do web designers tend to come from presently?** I haven't conducted a survey to find real data, but incidental contact with web masters leads me to believe that these positions are being filled by people who have computer science backgrounds, technical communication backgrounds, marketing backgrounds, and graphics backgrounds. It is clear that the position of web master has not yet fallen into a disciplinary domain. The next few years should show whether this position will come to be defined as subspecialty in computer science, marketing, or technical communication.
- **What kind of technical knowledge is necessary to be a web designer or manager?** If we are talking about a web designer and manager rather than a writer of and designer of web pages or even web sites, then such people will be expected to know how to set up and run online networks, how to use markup languages like HTML, DHTML, XML, how to use simple programming languages like JavaScript, CGI, and Perl. They will need knowledge of web page design programs and of operating systems like Windows NT or UNIX. Certainly the technical demands for this profession threaten to eclipse the traditional rhetorical concerns of technical communicators.
- **How does social and rhetorical knowledge affect the web manager's performance?** Social knowledge is perhaps the most important asset of the technical communicator, because the technical communicator understands how to represent information for users and how to represent organizations and products to the public. Marketing web sites are fast becoming the largest single presence on the web, and so the social knowledge requisite for sales will be important. But many web sites perform public relations functions, presenting an organization or company to the public.

And there are, of course, informational web sites that contain documentation for computer programs, archives of classical texts, recipes, and so on. So, although the technical demands may be great, it is just as important as ever to continue to stress social, rhetorical, and communication skills.

- **What can we do to make our programs and profession the ones people look to when they look for expertise?** As with other concentrations, our best promotion comes from successful graduates. It is, therefore, extremely important that our graduates go out better equipped than competitors. It seems to me that we need people with technical skills specific to web design and networking, with extensive knowledge of rhetorical and communication theory, with design and graphics skills than enable our students to produce professional quality appearances.
- **If we change our programs so that they have emphases in web development, what kinds of alliances will we have to forge with other disciplines?** I can't speak to the situation on other campuses, but here at Michigan Tech, we should try to work out agreements with the Computer Science department so that students can take Java, Perl, CGI. The Technology School here at Tech offers courses for systems administrators, and the Business School has a major in Management Information Systems.
- **What kind of boundary trespassing is likely to occur?** If these departments won't or can't offer the kinds of courses our students need, we may need to develop our own programming courses to supplement our markup language courses and information or library science courses.
- **What kinds of equipment needs will such a shift entail?** Presently our computer labs are set up for word processing, desktop publishing, web page publishing, and graphic design. What we don't have is a lab that allows students to get experience setting up networks, adding users, and controlling accounts.

At Michigan Tech, we have decided to begin a strand in web design and maintenance in our undergraduate degree program. With that decision has come a commitment to recruiting top students from high school (now that we have a job category that they are likely to recognize), a desire to set up intensive learning experiences as students develop web sites for various busninesses and organizations in the community, and the recognition that we need to make connections with existing web developers who can serve on our advisory board and perhaps provide internship experience for our students. Like new kids on the block, we feel like we may be moving onto the turf that others think is their own, but we believe we can prepare our students to be some of the best candidates on the market. Given their enthusiasm and the relative malleability of the field, we intend to make it work.

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Program Stakeholders

Spanning the Gap Between Academia and Industry

Moderator: Carolyn Rude

Integrating Theory and Practice Through Innovative Collaborations between Academicians and Workplace Professionals
Christine Abbott

Bridging the Gap Between Industry and the Academy Through Cross-Disciplinary, Real-World Courses
Locke Carter

Balancing the Theoretical and the Practical: The Use of Advisory Committees
Sherry Burgus Little

Academic/Industry Collaborations in Usability Testing: An Opportunity for Theory-Building or Burial Ground?
James F. Stratman

Let's Get Real: Programmatic Efforts to Meet Stakeholders' Needs

Moderator: Karen Schriver

Designing Technical Communication Modules for an Enterprise-Based Approach to Engineering Education
Marilyn M. Cooper

Meeting the Needs of both Students and Local Industry: Writin' for Racin'
Lisa Casali Daidone

Student Publications Groups: Meeting the Needs of Students and Industry
Elizabeth Pass and Mike Zerbe

Assessing Programs, with a Special Eye to Engineering Communication

Moderator: Marilyn Cooper

Program Design in Engineering Communications: Two Steps Forward and One Step Back
Dianne Atkinson

Partnerships with Engineering: ABET, Accreditation, and Assessment
Marjorie T. Davis

Technical Communication Programs in a Culture of Assessment
Linda Driskill and Margaret Hundleby

Enhancing the Future of Technical Communication in Schools of Engineering and Technology: An Argument for Involing E&T Faculty in Communication Assessment
Mary Rush Hovde

Looking Back to the Future: Technical Communications, "Engineering Writing," WAC & WID
Steven Youra

International Technical Communication

Moderator: Deborah Andrews

Developing a Global Technical Communication Program: A Work in Progress
William Coggin

Internationalizing Engineering Technical Writing Programs
Martin A. Settle and Deborah Bosley

Shifting Ways of Serving Clients

Moderator: Jennie Dautermann

Professor Becomes Trainer: Clues to an Inevitable Evolution During the 21st Century?
Ann S. Jennings

Writers and Mediators: Evaluating the Value-Added Aspects of Client-Based Programs
Molly K. Johnson and Jacqueline S. Palmer

Context and Evidence: The Strengths of Problem-Based Service Learning

Jennifer Craig Pixley

Attracting, Retaining, and Keeping in Touch with Students

Moderator: Bruce Maylath

Enlarging Our View of the Future: Claiming a Place for Technical and Scientific Communication in Higher Education
Jo Allen

Tracking and Maintaining Communication with Graduates of Technical Writing Programs: What Can Former Students Tell Us?
Julie Dyke

Recruiting Challenges in Undergraduate and Graduate Programs in Technical and Scientific Communication: Four Views

An Agenda for Building Technical Communication from the Ground Up
Carolyn Rude

Recruiting for Bachelor's Programs in Technical Communication
Laura Gurak

Looking to Ph.D. Students for Help with Recruiting Issues: What Factors Shape Applicants' Decisions?
Eva Brumberger

Recruiting Qualified Students into Graduate Programs in Scientific and Technical Communication
Mary Lay

Integrating Theory and Practice Through Innovative Collaborations Between Academicians and Workplace Professionals

Christine Abbott **Northern Illinois University**

Technical communication programs face a number of challenges, now and in the future: shrinking budgets, downsizing of faculty, increased competition for student market share, growing territoriality among departments, and rapidly obsolescent hardware and software. Increasingly, we are asked to do more with less. At the same time, we spend considerable time, in our journals and at our conferences, wailing about the rift between theory and practice and railing about the importance of collaboration and teamwork in workplace writing. While we have made great strides by trying to integrate theory and practice in our curricular planning and course work— through, for example, advisory boards composed of those from business and industry, internship and shadowing programs for students, guest speakers in our classes, and real-world client projects in our courses— we still have a long way to go in our own collaborative efforts with workplace professionals if we are to meet the challenges ahead and avoid becoming obsolete ourselves.

One such model for future curricular planning is the collaboration between Northern Illinois University (NIU) and the Chicago chapter STC Institute for Professional Development (IPD), which was initiated four years ago and is now in its second year of course offerings. The goal of the IPD is to offer unique courses for those with little or no experience in technical communication— courses that cannot be found through either university programs or vendor workshops, that merge theory and practice, and that offer participants the opposite of distance learning: intensive face-to-face interaction, study, discussion, and mentoring in a congenial environment.

The courses are planned and taught by a team of scholars, teachers, and workplace professionals and, unlike many academe/industry partnerships, which offer only certificates or Continuing Education Units and usually are staffed by part-timers, the courses are integrated into the university's technical communication program, carry undergraduate or graduate credit, and are coordinated by a senior faculty member, who also teaches in the program. Courses are offered on Saturdays and at off-campus locations convenient for participants. A typical class brings together traditional university students and workplace professionals who may have acquired the responsibilities of a technical writer but who lack a background in theory. Opportunities for collaboration and networking abound. The courses are not only intellectually rigorous (with many required readings and assignments, customized by the instructional team), but also fun. Participant evaluations of the courses have been superlative.

This is one low-cost, effective way in which those heading technical communication programs can conserve in-house resources and at the same time offer quality courses that tap the expertise of practicing professionals on the cutting-edge of our profession.

Bridging the Gap Between Industry and the Academy Through Cross-Disciplinary, Real-World Courses: A Solution for Today's and Tomorrow's TechComm Programs

Locke Carter **Texas Tech University**

Technical communication programs produce graduates who are expected to do a lot more than write documentation; they may find themselves working with software engineers, marketing professionals, management, sales staff, and subject matter experts, to name a few. It is critical, therefore, for designers of those programs to create situations where our students can gain experience in interacting with people in other disciplines to facilitate communication. To foster multidisciplinary interaction, the Texas Tech English, Marketing, and Computer Science Departments are working together through a senior-level technical communication course to produce materials for external clients. The TC students conduct user analyses, glean the major and minor tasks from the computer science students' design documents, establish usability testing procedures for their documentation, and create print and online materials to accompany the software produced by the computer science course. The success of the program depends, I think, on two things.

First, since the experience is cross-disciplinary, the students realize the lessons of rhetoric and communication from their introductory classes, for many of the problems that arise in this collaboration (and there are quite a few) stem from miscommunication, poor understanding of audiences, and disciplinary assumptions.

Second, the course is modeled on a "real-world" curriculum so that the client, the software engineers, the marketing students, and the technical communicators are interlocked in an evolving dance that must come to a conclusion by a certain date. The students all note that working towards a deadline puts "book learning" into a certain perspective. Technical communication students are working together to solve problems, are exercising their TechComm skills in order to produce materials based on evolving design requirements, and are learning management skills as they negotiate power within their own groups and power between the TechComm and computer science groups.

TechComm students in this program have landed good jobs at companies like IBM and National Instruments, and they report that their real-world, cross-disciplinary experiences have intrigued and encouraged their interviewers and recruiters, who see the experience as a way of bridging the gap between the academy and workplace.

I would argue, then, that this approach is a good way to upgrade today's curriculum, tempering the theoretical and academic mentality that comes from the university with the production-oriented, cross-disciplinary nature one finds in industry. It is an approach that is very appropriate for a senior seminar in TechComm, but I also believe there is plenty of room in the TechComm curriculum to introduce and implement this type of experience throughout a student's time in school.

Balancing the Theoretical and the Practical: The Use of Advisory Committees

Sherry Burgus Little **San Diego State University**

Always a thorny issue when designing technical communication programs is keeping a balance between theory and practice. Program designers are challenged to translate the abstract ideas of the university into the concrete realities of the workplace to ensure the program's relevance. After all, one of the marks of a program's success is that its students do get and keep jobs.

However, there is as much danger in privileging knowledge without its connection to workplace realities as there is in preparing technical communicators for today's jobs while ignoring the needs of the future. A healthy balance must exist between the theoretical and practical when designing programs because students need to master both theoretical principles as well as current skills and techniques. Creating links with industry and businesses outside the academic environment is an important task for designers of programs if for no other reasons than they should know the needs of the industrial and business community that will be hiring the students who complete the program.

One method for forming such a link is through the use of advisory committees, a group formed of representatives from industry and business. The use of advisory committees can help bridge the much-discussed gap that exists between industry and academia. In fact, Rachel Spilka is putting together a volume now about how academics can effect change in industry— get "them" to listen to us— give us some respect, a sort of reverse to the usual industry/academic collaboration theme in which the question is usually going in the other direction; that is, how we can get them involved in education. Unfortunately, having an advisory committee is a strategy little used in most technical communication programs, and literature on its use is scarce. Most of the literature about this instance of industry-university collaboration appears in vocational education literature, where such collaboration is used often, usually mandated by legislation, although some information about its use in technical communication, much dated, is available (Bosley; Brockman; Deming; Little). Perhaps because their use is so closely associated with vocationalism, the dirty "V" word, is one of the reasons programs in technical communication, usually housed in English Departments, shy away from using advisory committees, or perhaps program designers are just not familiar with such a formal, structured method to achieve collaboration between education and the "real" world.

Let me quickly report some information I gathered from a survey of academic programs, most of which do not use advisory committees. From a questionnaire sent out to 114 program directors, the 52 program directors who responded reported that 64%, or roughly 33 of the 52, do not use advisory committees. Of those reporting that they do use advisory committees, roughly 19 of the 52, 42% reported that they have been in place for more than three years. When exactly the directors had established the committees varied considerably: 42% indicated they had formed the committee after the program had been initiated, not before or during its planning. They responded that most of their committees meet as needed. About 56% of the directors reported that their committees had between 5 to 8 people on it.

I asked program directors to participate in a second stage of the study by distributing questionnaires to some of their advisory committee members. I received about 20 completed questionnaires (about the same number of directors reporting they used advisory committee), but too small a number to make any definitive conclusions. In some cases, though, it's a number large enough to see that an interesting contrast occurs when comparing what the program directors said about their committees and what the advisory committee members said about their experience on the committees. I want to share with you some of these comments.

Table 1 compares the responses of the directors to those of the committee members concerning who is on the advisory committee. The number of representatives from each professional group given is the number receiving the highest number of responses. Responses are given in percentages. Although members and directors did not perceive that the advisory committee represented all these groups, it is interesting to note that all agree no students are members of these committees.

The respondents were asked what the advisory committee did. I asked them to rate in what areas committees had significant effects. Table 2 reports the percentage of responses that indicated either a 4 or 5 on a 1–5 Likert scale, with 5 being "A great deal." Interestingly, no one reported "None at all." Members responding to this question perceived their greatest influence was in providing internships and hiring students, while directors of programs saw their members as being much more involved in actual instruction.

I asked program directors to identify the advantages and disadvantages of using advisory committees. Tables 3 and 4 list those items receiving the most frequent responses. When compared to the advantages and disadvantages that advisory committee members identified, shown in Tables 5 and 6, you can see that both directors and members have different ideas about what an advisory committee offers a program. Committee members perceive their participation in a much broader sense than do program directors. Members see themselves contributing to the profession as a whole rather than merely to a local program, although becoming emotionally attached to and protective of the program was identified as one of the advantages they identified. Both agree, however, the important part such activities play in bridging the gap between academia and industry and providing workplace literacy to students. That the exchange of information goes both ways is indicated by the members identifying their realizing that education and industry move at different paces as one of the disadvantages. Both admit to its being time-consuming, although advisory members complain of infrequent meeting as their most-cited disadvantage, whereas program directors admit they find it hard to identify "real" things for them to do. Interestingly, 33% of the program directors listed no disadvantages.

Contrasting the lack of use of advisory committees by academic programs with the many ways in which their use can bridge the gulf that often separates academic programs from practitioners, who are often the very people who will be hiring the graduates of the academic programs, raises the question, "Why are advisory committees not used more?" Reaching out to practitioners in industry through the advisory committee fosters a collaborative spirit for the success of academic programs and their students, as well as creating links that serve experiential learning objectives (such as internships) tied to most academic programs. This little-used strategy should become more of a fixture of academic programs as a solution for strengthening the academic/industry connection. Advisory committees mitigate some of the tensions that can exist between academia and industry and their use can help balance the conflicting demands in the binary of "training" as opposed to "education."

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Table 1. Who's on Advisory Committees?

	Number	Directors	Members
Professional Technical Communicator	5–6	31	45
Scientist	2–5	26	10
Instructors	2–3	33	35
Students	0	0	0
School Administrators	1–2	33	0
Other (Community and Business People)	2–5	39	40

Table 2. What do Advisory Committees Do?

	Directors	Members
Developing program	33	50
Evaluating program	50	39
Updating program	44	41
Providing internships	37	63
Placement	25	42
Designing course content	31	33
Hiring instructors	16	0
Evaluating instructors	0	9
Providing facilities	5	0
Donating equipment	5	0
Funding contacts	4	0
Other (Conducting workshops, acting as adjunct faculty)	27	0
Overall amount of influence		33

Program Directors

Table 3. Advantages of Advisory Committees

- Know knowledge and skills students need
- Advice about curriculum and design of program
- Political support
- Publicity for the program
- Placement for graduates and interns
- Contacts in the community
- Resources for conducting workshops

Table 4. Disadvantages of Advisory Committees

- Time-consuming
- Members lacked professional experience
- Members too oriented to specific needs of their area
- Finances lacking for amenities at meetings
- Schedule conflicts
- Hard to find "real" things for them to do
- (33% listed no disadvantages)

Advisory Committee Members

Table 5. Advantages of Advisory Committees

- Improve both quality and working environment of Technical communicators' world
- Improve quality of technical writing programs
- Provide industry input
- Provide bridge between academia and industry
- Discuss differences in approach to problem solving
- Gives educators broad view of potential courses
- Ability to keep program relevant to "real world" of work
- Become emotionally attached to and protective of program

Table 6. Disadvantages of Advisory Committees

- Infrequent meetings
- Difficulty reconciling committee suggestions with university requirements (education not as adaptable to the "real world" as it could or should be)
- Time-consuming
- Sometimes members too diverse in both experience and opinions

Academic/Industry Collaborations in Usability Testing: An Opportunity for Theory-Building or Burial Ground?

James F. Stratman **University of Colorado at Denver**

Usability testing is increasingly seen as a key area in which academic programs in technical communication and the information design industry may usefully (and profitably) collaborate. My concern is with how our programs' interests in developing and expanding technical communication theory, as their special province, may be either subverted or enhanced by such collaborations, and in particular with how such theory is treated, implicitly or explicitly, in the course of these collaborations. This issue can be put in perspective by looking at how the pedagogical literature on usability testing skill is emerging. For example, a popular textbook by Jeffrey Rubin (1994) does much to promote the value of usability testing, and its generally unstuffy approach invites use in exactly the type of academic/industry collaborative course now emerging. Nevertheless, the focus of this textbook might be seen as symptomatic of the ways theory and research can be marginalized in such collaborations.

Here I would like to nutshell this concern, in the hope of provoking some constructive discussion. First, although Rubin's text focuses rather heavily upon testing methods and provides lots of useful, highly practical directions and scenarios, it tends to obscure (and oversimplify) complex theoretical concerns regarding test validity and reliability, experimenter/test participant artifacts and reactivity, and sampling. Indeed, early on the book tries to draw a rather sharp and deeply problematic distinction between the concerns of "real-world" usability testers, who are said to need to work informally, and those of "classical" methodologists, whose concerns for formality are considered "impossible" or "inappropriate" for most usability testing situations (26–29). Somewhat inconsistently, though, later on the book stresses "rigor" (87–89) in test design. The question is, is this textbook's distinction between "real-world" usability testing and the academic researcher's version of usability testing one that serves fruitful academic/industry collaborations in this area, or one that exacerbates perceived conflicts and misunderstandings between academic researchers and professionals' needs?

Second, and perhaps even more importantly, Rubin's textbook does little to link the testers' choice of test methods to the existing visual, design, cognitive, social, or text comprehension theoretical and research literature. Instead, he directs test proposal writers to focus upon company goals, existing user complaint data, or similar local or contextual information available (83–87).

My point here is not so much to criticize Rubin's textbook per se, but simply to look at the ways it (or other usability textbooks) may reflect or influence industry/academic collaborations in the usability testing arena. Arguably, the implicit stance of this textbook is one that renders important theoretical questions and sources as, at best, inconvenient, and, at worst, as largely non-existent.

Assuming that the market for industry/academic collaborations in usability testing projects is going to continue to expand in the coming millenium, how do we, as programs, approach such collaborations so that theory comes to be seen and appreciated as a contributing starting point? How can theoretical issues find a less marginal, if not regular place in such collaborations, so that testing is not simply the opportunistic venture depicted in Rubin's otherwise valuable textbook, but a means by which theory becomes a valued term in the professional world, and not an implicitly pejorative one?

Designing Technical Communication Modules for an Enterprise-Based Approach to Engineering Education

Marilyn M. Cooper **Michigan Technological University**

Michigan Technological University has recently been awarded a grant from the National Science Foundation to develop an innovative approach to engineering education based on an enterprise model. The approach is a response to the perceived importance of teaching engineering students not only technical skills but also communication and interpersonal skills; appreciation of global competition and culture; awareness of environmental and social issues, ethics, and professional responsibilities; problem solving and and critical thinking skills; business sense and management skills; and lifelong learning skills.

Students electing to participate in the "Engineering Enterprise Program" take a 16-credit integrated design sequence that is distributed throughout the sophomore, junior, and senior years. The sequence includes both project and course work. The projects, or enterprises, operate much like a real company in the public sector: the employees (students) work on real-world problems supplied by industry and solve problems, perform testing and analyses, make recommendations, manufacture parts (where appropriate), stay within budgets, and manage multiple projects at once. The complete operation of he enterprise will be the responsibility of the students, primarily the fourth-year students who will have participated in the enterprise for several years and will have the capabilities, experience, and leadership skills required to manage the operation. In addition to the project work, students complete 8 credits of one-credit course "modules," selecting modules to take that help them with the current work they are doing on their projects.

Faculty in technical communication, rhetoric, and communication have designed three linked technical and professional communication modules for the Engineering Enterprise Program. The modules focus on oral and written communication but also contain significant components focusing on teaming, ethics, project management, and leadership. The modules are sequenced: learning in each module depends on success in achieving the learning outcomes of the previous module. Module 1, Models and Practices of Workplace Communication, introduces students to the breadth of the demands of technical and professional communication in workplace settings and links introductory skills building with conceptual knowledge and critical analyses of social and ethical implications of communication choices and assumptions. Module 2, Effective Communication Strategies in the Workplace, asks students to learn and practice strategies for effective oral and written communications in technical and professional settings, emphasizing audience adaptation of technical information and achieving clearly specified purposes. Module 3, Achieving Complex Communication Goals in the Workplace, asks students to apply strategies and knowledge learned in the earlier modules to the achievement of more complex communication strategies such as creating professional identities, collaborative relations, and responsible messages within teams and organizations and for a variety of technical and nontechnical audiences.

Designing these modules presents both logistical and conceptual challenges. I will sketch in more detail our current plans for the modules and will solicit input from the audience that will enable us to make this innovative approach succeed.

Meeting the Needs of both Students and Local Industry: Writin' for Racin'

Lisa Casali Daidone **University of North Carolina – Charlotte**

To most people, the Charlotte area is known for the banking business and the computer industry. However, many others recognize Charlotte as the "Motor City," since one of the Charlotte area's fastest-growing industries is motorsports, specifically NASCAR. The UNC Charlotte Department of Mechanical Engineering is well aware of the impact of NASCAR on our local economy and has a concentration in Motorsports Engineering. Engineering students intern for local NASCAR teams, and graduates go on to work in areas such as engine design and efficiency. These graduates are expected to demonstrate exceptional engineering skills, as well as the ability to communicate effectively and efficiently with all educational levels of co-workers: from PhDs to those with a trade-school background. However, until these engineers enter the workforce, many do not see the need for technical writing and how such knowledge will serve them. Most engineering students wait to take their required technical writing class until the last semester of their senior year, putting off what they see as an unnecessary and irrelevant course until the last possible moment.

To demonstrate actively the link between engineering and technical writing, I work directly with The William States Lee College of Engineering, specifically with the chair of the Department of Mechanical Engineering and with the coordinator of the Motorsports Engineering program, to include assignments in my technical writing classes that directly relate to their curriculum. So I will be seen by the engineering students as an active and involved member of the university and knowledgeable in their field as well as my own, I have become a part of the UNC Charlotte Inter-Collegiate Racing Team as an advisor. Students with a concentration in Motorsports Engineering have the opportunity to work on a "spec" racer: a "Legends" car. Students subsequently become the pit crew, adjusting the set-up of the car as needed. The team travels to racetracks in the vicinity, and student drivers compete against schools with similar programs. I travel with the team, supporting their racing efforts and providing my expertise in areas of procedure writing and publicity brochure design.

When these same students become part of my technical writing class, we continue the emphasis of the team effort and their Motorsports Engineering curriculum. Assignments directly relate to what will be expected of them in the local NASCAR industry. Students analyze actual NASCAR engine specifications and "translate" these specs to the reading level of the mechanic who will put this design into practice. To become proficient at instruction writing, students design a "car" made of Tinkertoys with a rubber band motor, and challenge other teams to tests of speed, rubber band efficiency, and design durability. Finally, students write proposals reflecting their own specific interest in the local NASCAR industry. For example, students may contact a local owner for the particulars involved in starting a NASCAR team. Students may do research and analyze the differences of track conditions and temperature in relation to tire wear. They write this material as a formal report and present their recommendations to the class.

It is the direct correlation between assignments that simulate the workplace and my participation in THEIR field that makes this program so successful. Students discover that technical writing teachers can do more than just teach writing. While students seem to benefit most from this experience, the local NASCAR industry benefits as well. These employers ultimately hire engineers who are prepared to handle problems of aerodynamics, analyze their intended audience, and write instructions for the appropriate reading level to apply the design.

Student Publications Groups: Meeting the Needs of Students and Industry

Elizabeth Pass & Mike Zerbe **James Madison University**

Part of our responsibility in the educating of technical communicators is to give them industry-related experience while in the education setting. Unlike many majors housed in the humanities (although some technical communication units are not housed in the humanities but such areas as engineering or agriculture), technical communication is a degree that must strike a fine balance between educational and practical experience. The market essentially requires graduates to come prepared with a portfolio.

The Institute of Technical and Scientific Communication at James Madison University prepares its students with the industry-related experience through the Student Publications Group (SPG). SPG students, who are advanced undergraduate Technical and Scientific Communication majors, write, edit, and produce a variety of documents for university as well as non-university organizations, including designing and maintaining articles submitted by faculty for publication in academic and professional journals, university newsletters and publicity, industrial manuals, and electronic journals published on the World Wide Web. SPG is a 400-level course for which students receive three credits. The group is managed by a faculty member, and the course counts toward his/her teaching load.

SPG has proven to be beneficial because it bridges the gap between industry and academy, provides work-related experience, allows the students to work through the entire project cycle, and provides different projects and different clients.

However, we have learned that there are decisions to be made and problems to avoid when evaluating the projects we take. We must make the decision of whether or not to take on paid projects: is this truly an educational experience or are we allowing our students to be exploited for their skills? What length of time should the project last? Long-term projects (e.g., journals) give valuable experience to the student, but does that counter the problem of never-ending projects that don't allow the students to feel a sense of completion?

Many technical communication departments and faculty relish the chance to provide industry-related experience to their students, especially in a formal setting such as a student publications group. However, our Institute has learned that projects that seem worthy have hidden disadvantages. It is important to develop an evaluation system by which to judge each particular proposed project in light of many contextual elements. If no evaluation system is employed, students and departments may suffer from bad public relations, problems with major and minor retention, a deteriorated educational experience, and students who are devalued or "pimped" through the educational and industry realms.

The proposed presentation will describe JMU's SPG in more detail and outline a preliminary set of criteria for evaluating potential projects for the SPG.

Program Design in Engineering Communications: Two Steps Forward and One Step Back

Dianne Atkinson **Purdue University**

Over the last decade, engineering curriculums have expanded to include more experience in engineering design, the art of using science to construct solutions to real problems.

While "pure science" provides the disciplinary foundation, "real engineering" is taught through experience with open-ended problems requiring creative solutions. Now students frequently work on teams, interact with industrial clients, present work-in-process, and seek informal exchange and feedback.

The re-engineering of engineering curriculums has opened up a problem-space important for program development in technical and professional communications:

- Interpersonal skills are important for negotiating with project partners.
- Presentation skills are essential for sustaining formal interactions.
- Information design skills are needed for delivering technical work to diverse audiences (team members, engineering faculty, and industrial clients).
- Digital media are important for supporting team-based communications and for interacting with distant clients.

Two Steps Forward

The incorporation of real world problems has complicated the engineering curriculum. Problems may require interdisciplinary and coordinated efforts.

People are everywhere— as collaborators and as customers. Consequently, instructional support for communication competency has become highly valued. Engineering degree programs usually require either additional communications coursework or provide "in-house" communications support.

One Step Back

In light of these recent gains, we can and should take "one step back." As professionals in communications and in instructional design, we need to step back and review what we have available and what we need to generate.

In looking back, one major concern about communications programs in engineering is that most instructional materials have been developed in other contexts and for other purposes. Precisely because effective support is now valued, we need to find out more about communications in the engineering workplace and about the specific communications tasks undertaken by engineering students.

In the past, we have used textual features ("the engineering report") and emphasized conventions ("spell check!") without much investment in understanding document functionality. Actually, as Dorothy Winsor pointed out recently (CCCC, March 1999, Atlanta), documents really can't be understood without reference to organizational context. In her examination of engineering work orders in a prototyping machine shop, she observed that form was not informing. Work orders could vary widely and still function as work orders.

For discussion, I would like to suggest some questions about our efforts to complicate communications programs in engineering and in other professional curriculums:

- Industrial organizations are common sources of engineering design projects. Can this relationship be used to extend our understanding of organizational communications in engineering workplaces?
- Texts are instrumental in developing programs and allocating resources inside the university. Are there ways that engineering students could be involved in that process?
- What resources might help us generate greater specificity for our engineering students (e.g., heuristics)?

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Partnerships with Engineering: ABET, Accreditation, and Assessment

Marjorie T. Davis — **Mercer University**

Since engineering first began to emerge as a profession, engineering educators have called for help in assuring the communication competency of their graduates. As Teresa Kynell points out, the earliest impetus for courses in technical communication came from engineering educators (Kynell 1996). English and communication teachers have sometimes welcomed the call for help and sometimes resented it. In recent years technical communication programs have arisen to help meet the needs of engineers as well as other students. With EC2000, a new accreditation standard for engineering programs, technical communication is emphasized more than ever. It is time for us answer a new call and to engage in active partnership with engineering faculty.

1. **ABET**— We must learn about ABET from our engineering colleagues. This professional society sets rigorous minimum standards that are agreed upon by engineering practitioners, industry representatives, and educators. Most teachers working within the liberal arts tradition find this professional focus to be very different from usual English department expectations (see www.abet.org).
2. **ABET Accreditation**— Standards are much more prescriptive and documentation is far more rigorous than most of us have encountered with regional college accreditation boards. This accreditation is not optional, as AACSB is for business programs. If engineers expect to be licensed as PEs, they must graduate from an ABET-accredited program. Close ties to industry are mandated in the form of industry advisory boards for each program or major. ABET holds training workshops for "visitors" and program directors; technical communicators should ask engineering deans to sponsor them to attend a workshop.
3. **Assessment**— Because of EC 2000, all engineering programs must demonstrate the educational outcomes of their programs— that is, students must show that they have mastered all the skills and content as outlined in program accreditation. Most pertinent to us is Criterion 3G: "Engineering programs must demonstrate that their graduates have... an ability to communicate effectively" (www.abet.org/accreditation).

Technical communicators have an obligation, responsibility, and opportunity in helping engineering educators respond to 3-G. Using what we know about writing, presenting information orally, designing documents appropriate to audience and purpose, and assessment, we can become valuable partners with engineering educators. The benefits to our own programs are obvious: greater credibility, wider institutional support, industry interactions, and improved student learning. If we do not participate, the costs are also obvious: someone else will decide what constitutes effective communication.

Partnership with engineers will be enhanced by our participation in these engineering professional societies:

- IEEE Professional Communication Society (www.ieee.org/pcs)
- American Society for Engineering Education (www.asee.org)

Additionally, programs with strong ties to engineering may consider helping to develop accredited BS programs in technical communication. Joining the ABET group would make us full partners with engineering educators.

We have much to learn as well as much to offer. With our strong historical ties and mutual interests, teachers of technical communication and engineering are natural partners.

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The cultural settings for technical communication programs are about to change. Th[illegible]shing of old and new assumptions in forming programmatic assessment practices is therefore subject to a number of significant factors: (1) a new accreditation process for engineering

Technical Communication Programs in a Culture of Assessment

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and technology programs, (2) opening of scholarly discussions such as that on the PhilChem list, (3) growing numbers of writing in the disciplines or writing across the curriculum programs, (4) new distance learning programs and for-profit universities, and (6) the specific recognition that accurate, productive assessment depends on a discipline's or communi[illegible] cultural goals (Odell). These growing trends commit us, as technical communicators, to working in a "culture of assessment." This presentation suggests how thoughtful assessment strategies may help us seize opportunities, construct a new narrative, and enable action in the face of inevitable constraints.

The distinctive visibility of the culture of assessment and its potential effect on technical communication became apparent when a participant at the 1998 CPTSC meeting asked whether she could use CPTSC's guidelines for assessing programs in an accreditation review of her university's technical science program. A group of interested volunteers discussed these possibilities by e-mail, at 4C's in Atlanta, and again in an ad hoc group at the June ASEE meetings in Charlotte. Two major points arose:

- The potential relations between assessment and program accreditation should be widely discussed and carefully considered across tech comm organizations.
- What is required in the workplace will become the basis for both teaching and evaluation.

The up-front demands for assessment offer technical communication programs potential benefits. ABET's Engineering Criterion 3(g), "the ability to communicate effectively," will increase engineering faculty's attention to technical communication and may provide a means to emphasize our own competence in relation to science and technology disciplines. There could even be more money invested in technical communication courses and programs. We can substitute a narrative of engineering education that includes us, whereas the old narratives excluded us (Lyotard; Kynell). On the other hand, students' failures could well be blamed on technical communication instructors/ instruction, and faculty could lose autonomy in designing curriculum. But the threat is viable only if we do not take the assessment obligations seriously and fail to press for being involved.

Besides being asked to develop assessment techniques that correspond to changes in academic goals, we may be required to accommodate to variation in professional milieu, as in distinguishing between natural and technical science, or accounting for the differences between electrical engineering and chemical engineering. At Auburn, communication is being re-absorbed into the school of engineering and individual assessment portfolios will be used. At Rice assessment results are being used to redesign web-based materials and instruction.

Assessment procedures have already changed: concern with testing procedures and statistical reliability has diminished (White). The emerging culture of assessment will demand that technical communication faculty, programs, and organizations respond with techniques for outcomes assessment that begin and end as robust formulations—durable across time and disciplinary borders (Star; Allen).

Our programs should participate actively to ensure that the culture of assessment provides opportunities and not threats to our discipline's integrity. Our professional organizations should collaborate in the discussion and testing of assessment methods to support individual programs' efforts on their respective campuses.

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Enhancing the Future of Engineering Communication in Schools of Engineering and Technology: Collaboration in Communication Assessment

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Several social and political forces, including the recent change in the Accreditation Board for Engineering and Technology's (ABET) methods for accrediting schools of Engineering and Technology (E&T) have caused schools with engineering and engineering technology programs to focus on many aspects of outcomes assessment of programs. Of the eleven Program Outcomes and Assessment areas that ABET has required to be evaluated, the area in which many E&T faculty may feel least comfortable, is in assessing their students' abilities to "communicate effectively" (ASEE, p. 14). There are many reasons for this discomfort, but I believe that E&T faculty should participate in conducting communication assessment. I argue that people who teach engineering communication and E&T faculty should collaborate so that together they can effectively assess students' communication abilities and also achieve other institutional and pedagogical goals.

When I proposed at my own institution that the Technical Communications and the E&T faculty should work together to assess communication abilities of students, I met with resistance from several members of the E&T faculty. I believe that one cause of this resistance may be that engineers and engineering technologists have historically held the position that technical knowledge can be separated from the means used to communicate it (see, for instance, Winsor 1996). Thus, many E&T faculty members believe that evaluating and teaching communication abilities is outside their area of expertise. Although for the past several years Technical Communications faculty at IUPUI have been trying to counter this philosophy, the perception was still strong that we should hire English graduate students to assess our students' engineering communication abilities. Our E&T faculty also perceived that they were too busy and did not perceive of themselves as competent in assessing communication abilities.

As Yancey has noted, when designing communication assessment, one needs to take into account the constraints and needs of the educational institution. In light of the constraint that E&T faculty may be reluctant to assess communication and in light of the needs of E&T schools and Engineering Communication faculty, I argue that E&T faculty should be involved with communication assessment for the following reasons:

1. E&T faculty who are competent in their fields have mastered enough of the conventions of professional genres so that they know more about communication than they may be able to articulate. The role then of a technical or engineering communication person is to help E&T faculty to articulate those understandings well enough to use them in designing assessment activities.
2. E&T faculty who are trained and who help to develop the criteria for assessment will feel more confident in the classroom when assigning and evaluating students' communication activities. The CCCC position statement argues that "money spent to compensate teachers for involvement in assessment is also money spent on faculty development and curriculum reform since inevitably both occur when teacher begin to discuss assessment which relates directly to their classrooms and their students."
3. The results of communication assessment will make much more sense to E&T faculty members if they have helped to develop standards and processes for engineering communication assessment. The CCCC statement also calls for the results of communication assessment to be accessible to faculty so that they can revise curriculum if need be. I believe that the results will make more sense and be more accessible to faculty members who have a

deep understanding of the criteria and processes for assessment. In addition, accrediting organizations want to see evidence not just of assessment, but also that the findings from assessment have been used to shape future work with students.

4. E&T faculty along with Technical Communication faculty can provide multiple perspectives for assessing communication quality. E&T faculty can provide subject matter expertise that technical communication faculty (or English graduate students) cannot.
5. The CCCC Committee on Writing Assessment recommends that those who teach the students should also assess those students' writing abilities. They argue that faculty members know best what activities may assess well what their students are able to do. Localized assessment of communication can provide a "community of interpreters" with a "knowledge of that community" who can "assess fairly" (p. 432). Along with Huot, Yancey notes that the field of writing assessment has moved away from "psychometric" (p. 484) experts testing students and have moved towards having faculty assessing students' communication abilities

In engineering communication assessment, I would argue that technical communication faculty and E&T faculty are all experts who should conduct communication assessment. Table 1 summarizes what members of each group may contribute to collaboration in engineering communication assessment.

As one can see, no one group possesses all the abilities needed for rich engineering communication assessment, but collaboration can ensure that at least one member brings to the assessment team a high level of ability in each area.

In addition to acknowledging the strengths that each group can bring, we also need to be aware of what benefits members of each group can gain through such collaboration.

Benefits of Collaboration for Technical Communication Faculty Members

- *Feedback to be used in curricular and course design.* As Technical Communication faculty members, we often have not had opportunity to revise our courses based on rigorously-gathered data. The process of conducting ABET-required outcomes assessment may provide us with more broadly-gathered data than we can gain from our own experiences and observations. Insights from E&T faculty members with whom we collaborate can also provide us with arguments useful in curriculum and course redesign.
- *Greater usefulness to schools of Engineering and Technology.* Whether located in traditional English Departments or as part of a school of Engineering and Technology, Technical Communi-

Table 1 . Various faculty bring different expertise to assessment of engineering communication

Abilities Needed for Assessing Engineering Communication of E&T students	Level of Ability of Technical Communication Faculty Members	Level of Ability of Engineering and Technology Faculty Members
Technical knowledge	Minimal, moderate	High
Workplace communication experience	Moderate, high	Minimal, moderate
Experience with teaching engineering communication	High	Minimal, moderate
Well-thought-out theory of engineering communication	High	Minimal, moderate
Experience with assessment of communication	Moderate, high	Minimal
Concern for student learning	Minimal, moderate, high	Minimal, moderate, high
Knowledge of the standards and conventions for engineering communication	Moderate, high	Minimal, moderate, high
Statistical/quantitative expertise	Minimal, moderate	Moderate, high

cation faculty often occupy an unusual status. Engineering Communication courses are often considered mere "service" courses, despite many efforts to make them intellectually well founded. Communication assessment activities may enhance our usefulness to Schools of E&T.

- *New perspectives on program assessment to contribute to scholarship on assessment.* A great deal of communication assessment scholarship has been based on placing first-year students in composition classes or on testing students as they are ready to exit their degree programs, but little thought has been dedicated to assessing writing programs, especially engineering or technical writing programs, and their outcomes. As more people reflect on their experiences and observations in assessing technical or engineering programs, theories of communication assessment will be enriched.

Benefits of Collaboration for E&T Faculty Members

- *Opportunity to articulate criteria for communication.* Many E&T faculty with whom I have worked indicate that they would like to improve their students' communication skills but are not sure how to do so. I believe that a valuable first step in teaching students to communicate effectively is to articulate the expectations for effective communication. As E&T faculty participate in the process of assessing communication, they may be able to become more aware of principles that will aid them in teaching their students to communicate more effectively and appropriately. Such an articulation of principles and criteria may also increase the E&T faculty members' confidence in their ability to evaluate and improve their students' communication abilities.
- *Improved communication assessment skills.* Many E&T faculty also note that they have a hard time knowing how to evaluate students' writing and speeches. Being trained in an assessment process on how to evaluate communication artifacts can help them in the classroom as they grade student work.
- *Enough understanding of communication strengths and weaknesses to revise curriculum.* The results of communication assessment can provide data that goes beyond one's own experiences or instincts. This data can be used in the reasoning for making curricular changes for majors.
- *Expanded view of the relationship between communication and technical knowledge.* As mentioned above, many of the E&T faculty members with whom I have worked tend to view their communication as secondary to their "real" work. Even those who recognize the importance of communication to engineering and engineering technology may still hold views that "knowledge" can be separated from communication. I anticipate that collaborating in communication assessment can help technical people realize that knowledge is embodied in discourse, that communication is not peripheral to one's expertise. Such a change in perspective may help to raise the status of communication in the eyes of E&T faculty members, and it may also help to demystify it.

Collaboration in assessing engineering communication can provide an opportunity for engineering communication faculty to demonstrate the significance of our work. In addition, collaboration can also benefit E&T faculty as they educate students. Collaboration can provide us not only with better assessment, but also help us to improve the communication instruction of E&T students as they prepare to be the technical experts of the future.

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Looking Back to the Future: Technical Communication, "Engineering Writing," WAC and WID

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To help technical communications educators gain our bearings and steer (or stare?) into the future, we should look both backward and forward at connections between tech comm and engineering education. This paper/discussion piece considers how current and future trends in engineering curricula and pedagogy may affect tech comm and it examines areas of potential collaboration that could enhance education in both fields.

Historically, technical communications has been closely tied to engineering education. In his landmark essay on the history of technical communications, Robert Connors notes that "until the 1950's technical writing and engineering writing were synonymous" (333). Recently, Teresa Kynell has shown how developments in engineering curricula fostered the emergence of technical communications as an independent academic field. (On most campuses today, engineering majors still make up the largest number of students in tech comm classes.) With Connors and Kynell as background, this paper considers several key trends in engineering education that offer new opportunities for productive collaborations with technical communications programs.

Writing Across the Curriculum/Writing in the Disciplines

On some campuses, WAC/WID initiatives have been seen as a threat to tech comm, as increased attention to writing and speaking within engineering courses potentially undermines stand-alone classes technical communications. But technical communications can play a vital role in these developments, especially as teaching practices for writing within the disciplines are informed by substantive research into specialized discourse communities. For example, Jones and Comprone argue that WAC proponents "need to know for more than we do at this point about how discipline genres are constructed, negotiated, and mediated in everyday oral and written discourse. . . [W]riting within the academic community and of professional engineers must jointly influence the way writing is taught in WAC courses if those programs [are] to develop beyond the writing-to-learn threshold" (66). Communications across engineering curricula can benefit from tech comm's research into industrial communications practices, as well as our process-based pedagogy and workshop teaching format.

Professional Accreditation and Writing Assessment

Because engineering is a profession as well as an academic major, national accreditation standards strongly influence curricular decisions. New program assessment standards developed by ABET (the Accreditation Board for Engineering and Technology) embody a radical shift from checklists of required courses to an outcomes-based approach. According to these Engineering Criteria 2000, every engineering program must demonstrate that its graduates have achieved eleven required outcomes, including "an ability to communicate effectively." The shift to an outcomes approach has caused uncertainty and anxiety among engineering educators. However, this challenge presents an opportunity for technical communications instructors, with our expertise in portfolio review, audience assessment, reader response, and rhetorical dimensions of engineering (Winsor).

Collaborations with engineering in these and other areas (e.g., teamwork and project-based learning) can be mutually beneficial. Furthermore, by working more closely with engineering instructors, we can understand how to prepare students more effectively for the academic writing required in the technical curriculum. Technical communications experts have much to offer engineering teachers, especially as independent and equal collaborators in the education process.

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Developing a Global Technical Communication Program: A Work in Progress

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Each of us understands the importance of "globalizing" our technical communication programs, of preparing our students to work in environments which emphasize localization or globalization. Providing students experience in international technical communication can be handled at many levels. We can, for example, offer units within courses or can add additional courses about communicating globally.

Whatever choices we make have implications for programs. Adding courses further burdens student schedules, or leaves us making choices about which existing courses we abandon. Additions of courses in international technical communication may affect faculty recruiting and require current faculty to alter teaching and research emphases. I present here a possible alternative.

Language acquisition is a cultural activity and understanding cultures involves an understanding of how languages function. Ideally, then, students who need to communicate in a global environment should be thoroughly versed in multiple languages and cultures. That is generally not feasible. However, it is possible for students to focus within their degree programs on learning extensively about a single country's language and culture. Language departments within our universities already offer courses in various languages and cultures. We can cooperate with those departments in developing appropriate courses for our students. We cooperate with other departments now, for example, computer science, business, and technology in designing courses to benefit technical communication students. Even this approach has its limitations, though, because they still teach languages and cultures rather than allowing students the opportunity to acquire a language and understand a culture.

A complementary idea, then, is to create joint programs with universities in foreign countries. That is, establish joint technical communication programs with at least one university in various foreign countries. Students from those countries interested in technical communication could take basic courses at their home universities, then come to the U.S. for extensive courses in English language and culture and technical communication. Students from the U.S. could take technical communication and basic language and culture courses for the country which they emphasize at their home universities. Then they could go to a foreign university and take intensive courses in language and culture. Those students who complete the program would be graduated with a joint degree from both universities.

This type of cooperative approach could provide students the opportunity to truly understand another language and culture. Technical communication faculty continue to concentrate on current areas of interest. Internship and job development in the foreign country become in major part the responsibility of faculty members at the cooperating university. Both universities would have additional opportunities for faculty and student exchanges.

Funding for such a program, however, remains a complicated issue. Living abroad is expensive. Students involved in such a program would need financial support. Part of that support could be provided by the universities involved. However, further support would need to come from industries and from various agencies which fund international exchange programs.

If funding issues can be resolved, cooperative ventures may answer many of the questions we have in teaching our students to communicate in a global environment.

Internationalizing Engineering Technical Writing Programs

Martin A. Settle and Deborah S. Bosley University of North Carolina–Charlotte

By the early 1990s, it had become increasingly apparent that the global nature of business was going to influence our educational institutions. The work force was fast becoming an intercultural and international environment. One profession particularly subject to this global tendency is engineering. At the same time, the population of ESL students entering the field of engineering was growing rapidly and brought with them new and necessary demands on teachers and students. To address that situation and the mandates from ABET (the engineering education accreditation agency) to increase communication, cultural, and international skills, Project SUCCEED (Southeastern University and College Coalition for Engineering Education) developed a set of curricula changes for engineering education that eventually impacted UNC Charlotte's entire technical communication program.

In 1993, the Technical Communication Program at UNC Charlotte was asked to work with Project SUCCEED to internationalize the Introduction to Technical Communication required of most engineering students. The Program Advisor for Technical Communication agreed to integrate Project SUCCEED's guidelines, which governed that:

- Students would be taking courses that prepared them to work in a global environment
- At the center of the courses would international and intercultural issues in engineering
- The knowledge and skills of faculty and students who had had international experience would be incorporated into the courses.

Such changes would prepare students to:

- work more effectively in a global economy
- be culturally aware and respectful
- see problems from multiple perspectives
- speak to the skills, knowledge, and needs of our growing ESL population.

Because the "internationalizing" of the introductory course was so successful, we integrated many of the assumptions, techniques, and methodology into the entire program. As we move into the new millennium, international education could become more situated at the center of many educational initiatives and curricula. Therefore, we will present some of that methodology for internationalizing our Introduction to Technical Communication course (Martin Settle), discuss the impact this internationalizing had on our technical communication program, and suggest ways our experience could serve as a model for technical communication programs throughout the country (Deborah S. Bosley, former program advisor).

Professor Becomes Trainer: Clues to an Inevitable Evolution during the 21st Century?

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Four clues indicate that technical communication professors and courses are borrowing traits and techniques from the field of training. First, as technical communication courses become ever more software dependent, professors scramble to incorporate the latest applications as tools in subject-matter courses. A significant percentage of class time may be devoted to instructing students in software skills for immediate use in class projects. How different is this activity from the concepts-and-skills emphasis of thoughtfully prepared corporate training courses?

Second, the increasing age and work experience of university students influence this trend that blurs the line between education and training. In some technical communication classes, employed adults outnumber students of traditional age. This statistic can have a profound effect on the content and conduct of a course. For instance, adult learning theory suggests that adults want to learn things that have immediate applicability on the job. Professors note older students' keen appetite for projects that produce practical results: a CD-ROM that can be shown to an employer as proof that corporate reimbursement of employee educational expenses has been fruitful; or perhaps a student-produced newsletter or feasibility report, carefully researched and written, as well as professionally formatted, more proof that university course content has immediate applicability in the workplace.

Third, experts in both training and higher education emphasize trainee/student responsibility for their own learning and the importance of learner-centered rather than instructor-centered delivery of courses. This approach is confirmed in two pithy publications: university educator Judith Grunert's *The Course Syllabus: A Learning-Centered Approach* and corporate trainer Bob Mosher's *Training for Results: Teaching Adults to Be Independent, Assertive Learners.*

Fourth, professors find themselves taking adult-learning short courses, particularly software courses. Such courses are offered by commercial training organizations, professional societies including the Society for Technical Communication, and training units within universities. Some professors notice their technical communication undergraduates earning master's degrees in instructional technology, then returning to campus as staff members of technology learning centers to which the professors turn for training in higher level technology skills.

These four clues indicated that training and education are growing ever more similar. If professors agree with the notion that education should help students learn how to learn and learn how to adapt to changing environments, then traits and techniques borrowed from the field of training can aid technical communication programs in providing valuable experiences to students.

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The Value of Client-Based Projects: Student and Instructor Perceptions

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Literature Review

Greeno, Collins, and Resnick (1996) offer three philosophies of knowing and learning that have direct implications for how the learning environment is structured: the behaviorist/empiricist view, the cognitive/rationalist perspective, and the situative/pragmatist-sociohistoric perspective. Interestingly, client-based technical communication projects that engage students in developing actual products for real clients appear to support each of these three educational philosophies.

In the behaviorist/empiricist view, learning environments stress organization and routine, contain concrete attainable goals, and emphasize individualized instruction. A client-based project designed to result in a technical communication product requires students to plan and organize a systematic approach to solving the client's problem. Since the project is specific for one student or a student team, each is faced with challenges shared by their classmates (e.g., solving problems, resolving conflict, researching, organizing, drafting, editing, illustrating), as well as those unique to that project.

In the cognitive/rationalist perspective, the instructor designs interactive problem-solving environments that allow students to construct their own understanding. In client-based learning, students (with both the client and instructor) must negotiate a shared understanding of what each needs. They must then actively apply technical communication concepts and skills to develop subject-specific documents, a process that may require them to build a working knowledge of a topic, area, or approach completely new to them. That is, they must "construct" new knowledge in the context of a real-world problem.

The situative/pragmatist-sociohistoric learning environment encourages inquiry and personal sense-making. Activities connect to the larger social context and emphasize the unique contributions by different cultures. By requiring students to work with clients outside of the classroom, we engage them in active discourse communities, each of which can provide a different social perspective and involve real-world research and exploration.

Client-based projects incorporate five qualities noted by Olds, Pavelich and Yeatts (1990):

- They have no set right answer and often, no single solution.
- They provide self-learning beyond the traditional school setting, often engaging students in field work and qualitative research (e.g., interviews with experts).
- They encourage teamwork, since many real-world problems are larger and more complex than one student can complete within a single-semester time frame.
- They encourage application of skills from multiple disciplines.
- They are perceives by students as worthwhile, based on genuine client interest in a solution.

In a 1994 study (1986–1991), Wickliff (1997) collected data from former students assessing their perceptions of the value of client-based projects they had participated in during their undergraduate work. Wickliff found that 87% of his former students continued to place a high value on their client-based experiences. He also found that his former students continue to value specific skills targeted in the client-based experiences: reporting, researching, problem-solving, and collaborating.

The Research Questions

As technical writing instructors convinced of the potential value of client-based projects, we were interested in examining student learning of technical communication skills in such projects. We collected data from three different academic settings to explore the following:

- extent to which student involvement in client-based projects affects assimilation of technical communication concepts and skills

- extent to which instructors mediate client-based student projects
- perceptions about the value-added aspects of client-based projects by both students and instructors

The Settings and Subjects

The settings included two scientific and technical writing classes for undergraduate students, two scientific and technical writing classes for honors students, and an Eisenhower Leadership Development Project for agriculture, liberal arts, business, and engineering students. The settings have common student and project features (see Table 1).

Table 1. Student and Project Features for Research Setting

Student Features	Project Features
• attend the same university • consist of undergraduates, primarily college juniors and seniors • come from a variety of disciplines	• engage students in developing communication products for real clients • require the guidance of one or more instructors • result in technical communication products scored by instructors • require direct contact between students and clients • involve process components (e.g., development of problem statements, outlines, oral briefings, interim drafts, and final documents) • engage students in researching, analyzing, designing, teaming, interviewing, and surveying

The settings differed in length of time allowed for each client-based project, the extent of client contact, the degree of faculty mediation between client and student, the method of selecting student participants, the focus/purpose of the course (e.g., technical writing or leadership training), and the organizations serving as clients.

We surveyed 46 students and interviewed seven instructors during the 1999 spring/summer sessions. (Note: This is an ongoing research project; data is still being collected.)

What the Data Show

Student assimilation of technical communication concepts and skills. In exploring this research area, we considered both student and faculty perceptions. We asked students their perceptions. Then, using a Likert scale, we assigned each response a numerical value. Faculty perceptions were anecdotal, based on final scores on student projects, frequency of actual student/client contacts, and comparisons of project quality with the quality of projects done by students not engaged in working with clients.

The numerical value for the degree to which students felt their participation in a client-based project influenced their technical communication skills is 2.4 out of a possible 5 (See Table 2). This indicates that students felt learning technical communication skills and concepts is only minimally affected by involvement in client-based projects.

As demonstrated by the following quotations, students who acknowledge a more positive client influence are apparently able to recognize the need to modify products to accommodate the desires or needs of the client and/or user as an essential technical communication skill:

- "Working with the advisor has taught me the realistic problems of working for individuals who have conflicting ideas about how a project should be handled and what the end product should be."
- "It is a careful balancing act to give... [the instructor] what... [she wants], the ... [clients] what they want, and still do what we feel is important."

Instructor perception of student assimilation of technical communication skills is reflected in high final project grades (consistent scores of 4 or more on a Likert scale). While we have no hard data to prove the high quality of client-based projects exceeds that of projects that do not involve real clients, there is some indication that those students who have no client contact (i.e., contrived or fictional clients) produce less satisfactory information products.

Table 2. Student and Instructor Perceptions of Effect of Client-based Projects on Enhancement of their Technical Communication Concepts and Skills

Assimilation of technical communication concepts and skills	Likert scale of 5
Degree to which students felt their participation in a client-based project influenced their technical communication skills	Range 1–5 Average 2.4
Instructor perception of student assimilation of technical communication skills reflected in high final project grades	Range 4–5

Extent to which instructors mediate client-based student projects

Six of the seven instructors mediated student/client projects. Mediation included finding clients, identifying projects suitable for students (e.g., time, research, and monetary constraints), setting up student/client meetings, preparing project descriptions and schedules, and communicating with clients as the projects progressed and after they were completed. The actual amount of time spent mediating varied across instructors. According to one instructor, "All the client contact is done at the front end [when securing projects]... so time chunks are significant at the beginning of the semester, [and] slack off in the middle." For some, the amount of effort increased at the end of the project with final, formal, student presentations to clients.

Perceptions of the value-added aspects of client-based projects

The number and length of student contact with clients varied considerably across the projects and project settings. They ranged from single email exchanges (with no face-to-face contact) to weekly meetings. While this may have influenced student perceptions of the value of working on client-based projects, our survey results indicate that 20 out of 39 (51%) respondents felt the extra effort required in working with the client was definitely worth expending (see Table 3). One student told us, "Working with an advisor has been the best part of the project (really!) because it mimics the real world... a project is not the ideas that I prefer, but more what my client prefers." Only five respondents (13%) felt that working with a client made the project more difficult than it was worth. One stated, "It's too hard to work with an actual client who has other, more important things to do besides concerning themselves with our [project]... " Another student told us that trying to connect with the client was very difficult. Thirty-six percent of respondents felt working with a client neither added nor detracted from the project effort, although several of these stated that working with a client provided needed motivation and direction.

Table 3. Perceptions of Value-added Aspects of Client-based Projects Held by Students

Worth the effort expended	51%	*Working with an advisor has been the best part of the project (really!) because it mimics the real world... a project is not the ideas that I prefer, but more what my client prefers.*
Ambivalent	36%	*Having a client was an inspiration to do the best job possible.*
Not worth the effort expended	13%	*It's too hard to work with an actual client who has other, more important things to do besides concerning themselves with our [project]...*

All instructors continue to incorporate client-based projects in their coursework, an ultimate indication of the perceived value of such projects. In addition, repeat clients and client referrals over the years indicate client satisfaction with the collaboration, as well as with the quality of the projects/products. The following instructor observations confirm the perception that mediating client-based projects enhances learning of technical communication concepts and skills:

- Student "appreciation is probably deferred until they are in a working environment" (see Wickliff 1997).
- "Students really want to submit quality work [because] their efforts are going to be put to use! If you knew no one–or just the instructor–was going to read your report (or it would be thrown away or put on a shelf), what effort are you going to put into it? Think about it in terms of motivational perspective! When you use real projects, the performance steps up a bit."

Conclusions

Even though some students may not immediately recognize the value of working with actual clients in academic settings, nor even notice the extent to which such projects enhance technical communication skills, instructors who incorporate client-based projects in their coursework feel the experience enhances the quality of the resulting information products. They continue to recruit clients and develop collaborative real-world projects that challenge students to improve their technical communication skills. In our study, all of the instructors and most of the students felt the experience was worth the extra effort involved in dealing with the clients.

Implications

Technical communication has changed over the years, from a discipline focusing on developing formulaic documents (e.g., manuals, proposals, and reports) to a complex approach to integrating writers into a corporate problem-solving environment. Yet our research suggests that although instructors value the skills required for students to effectively interact with clients to identify and address technical communication challenges, most students still do not consider or value these interpersonal skills as technical communication skills.

Perhaps what is needed in order for students to connect their classroom learning experiences with real-world technical communication (e.g., to construct personal meaning) is *a stronger classroom focus* on:

- verbally communicating with a client that has no idea what s/he needs or wants
- applying analytical and problem-solving skills
- engaging in the messy business of conflict resolution (what one well-known technical communication consultant calls "corporate marriage counseling")
- interacting effectively in organizational settings

Client-based technical writing projects support multiple educational philosophies. As long as all the instructors and over half the students feel such projects are worth the time expended, they will continue to exist. The challenge, then, is to modify classroom instruction so that students realize that these interpersonal skills are essential technical communication skills. Such an approach could effectively involve metacognitive strategies that require students to identify and become conscious of skills they are applying as they work through challenges posed by client-based projects.

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Context and Evidence:
The Strengths of Problem-Based Service Learning

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There is no sign that the rapid pace of change in technical communication is slowing. Thus, how can we design programs that are flexible and current enough to teach students the technical communication skills necessary in workplaces besieged by shifts in science, technology, and culture? Do we have evidence that our students learn from our programs? Can they actually do something other than complete assignments? One solution may be for technical communication programs to incorporate a problem-based service learning (PBSL) component in curriculum design. This learning strategy provides rich and various evidence of solid student learning while introducing students to the realities of ethical communication and effective collaboration in workplace writing.

Problem-based service learning is a more focused version of service learning, an approach that is sometimes dismissed as enforced volunteerism or as learning that lacks rigor, or that is too risky for community partners. But we see it as a critical learning strategy for our upper level technical writing students. We want them to not only know theoretical material but also to be able to use it in the real world. And we want them to begin to think like writers rather than students. This is why we find PBSL particularly valuable and why we design PBSL modules into many of our upper level courses. In order to assure ourselves that PBSL modules are neither shallow nor risky, we have learned to look closely at the context of the learning and the evidence of student learning.

Context

When we consider a PBSL module, we evaluate the community partner's need for a specific document, the community partner's criteria for that document and the student's capacity to produce that document according the criteria. By looking at these elements, we're able to design the PBSL experience in such a way that the student's capacity to write and collaborate grows and is able to meet the client's criteria. This step requires sufficient time to work with the community partner to clarify his/her expectations and time to assess student capacity. This is why PBSL modules are usually preceded by classroom-based teaching and by team building work.

Evidence

PBSL strategies rapidly produce complex learning, but not all of this may be evident in the final product. Using PBSL means designing various ways for students to exhibit their abilities and their learning. Careful assessment is a significant part of the student's experience and allows him/her to reflect on the learning as well as to connect it to his/her academic life and future career. Thus, assessment strategies in PBSL modules go further than the final product. Possible assessment tools include but aren't limited to journals, response papers, planning guides, team management reports, oral briefings, individual drafts/revisions of documents, minutes of meetings with clients, meetings with the instructor, and class discussions. Not only does the PBSL teacher collect evidence by which to assess the student's learning (or lack thereof), but also the teacher sees clearly how the work for the community partner is progressing. Ultimately, paying attention to what's working or not working for the student helps reduce the risk to the community partner.

Careful attention to the context of the PBSL module and the evidence of student learning ensures a rich learning experience for the student. Well-designed PBSL modules are almost always interdisciplinary, collaborative, and grounded in the application of theory to practical issues of workplace literacy. Ethical issues and technological demands are integrated into the project work, asking students to address these challenges in stride. Students learn that their writing is valuable and that they are able to contribute something important to their community.

Problem-based service learning is not a one-size-fits-all answer. It requires the ability and time to develop relationships both in the community and in the classroom; the willingness to assess student capacity carefully; the patience to tolerate some confusion while keeping an eye on the desired outcomes; and the ability to help a student analyze successes as well as failures. However, a well-designed PBSL experience provides value for all of us in technical communication education as well as for our students and our communities.

Enlarging Our View of the Future: Claiming a Place for Technical and Scientific Communication in Higher Education

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North Carolina State University

The millennium seems to stimulate all sorts of predictions about the changes to come. As technical communication educators, we, too, are prone to wonder and speculate, and we do so from interesting vantage points: between technology and the humanities and between academe and industry. We are looking far too narrowly at the future, however, when we limit our discussions of the future to changes in our curricula, potential technologies, and eventual employers of our students. More broadly, I encourage us to examine the role of technical communication within the future of higher education and to position ourselves more solidly in the discussion of what the next millennium will bring.

Several hotly debated issues in higher education have significant implications for technical communication programs, faculty, and administrators. Our failure to acknowledge these issues, get involved in the discussion, and participate in resolving problems is unfortunate if you believe, as I do, that technical communication faculty and administrators have some pivotal understandings of some of these issues. I intend to discuss just four broad-based higher education topics— drawn from philosophical and moral responsibilities and from economic and technological realities— that should concern technical communication educators: diversity, fund-raising, partnerships, and technology.

Diversity

It is no secret that technical communication attracts far too few African-Americans and other minorities to our profession. A quick look at the participants here at the Council of Programs in Technical and Scientific Communication is representative of a similar picture at other professional meetings: very homogeneous. The reasons behind that homogeneity are likely to be complex, but we have done little to explore even the surface causes and effects.

Most programs that reflect only modest diversity are quick to point to either their tried-but-failed efforts ("We just can't attract good minority students") or the competition for those students ("Any students who are good enough to be in our program are good enough to be in engineering" or "We lose a lot of students to higher caliber institutions who can either provide better scholarships and financial aid packages or who offer more prestigious degrees.") as the culprit behind the homogeneity. Unfortunately, we have not done a good job at finding out what would attract minority students to our profession. The second argument suggests that large numbers of minority students are attending more competitive or more prestigious institutions: the numbers, however, do not reflect that. I daresay there is no technical communication Mecca for under-represented students.

At the very least, research attending to diversity in our field is needed, and setting our discussions within the larger scope of diversity in higher education would advance, I believe, both the discussion and potential solutions.

Fund-Raising

Constricted resources are a fact of life at most institutions. As faculty and administrators identify needs for new (and more expensive) technologies, faculty positions and raises, and general overhead, a more consistent message is coming from higher administration: Raise the money yourselves. Many administrators are asking, for instance, that requests for substantial funding be accompanied by at least one-third of the funding already in hand. Working with our institutions' development or advancement offices may well be critical to meeting the changes demanded by new technologies and competitive faculty salaries. Thus, setting aside some time to meet with your institution's advancement officer may help you identify some potential donors and strategies for proceeding with fund-raising initiatives.

Partnerships

Well-linked partnerships with on-campus and off-campus entities are also likely to be critical to technical communication programs' ongoing successes. Already we have acknowledged the interdisciplinary nature of our studies, creating effective partnerships between our own and other departments' faculty and resources on campus. Similarly, we have arranged numerous partnerships with corporate and industry leaders to place our students in internships, cooperative education positions, and part-time and full-time employment, and we have invited members of industry to serve as advisers, speakers, and program assessors.

But we should be making more of those partnerships than we are. Opportunities for unique sponsorships and fund-raising, for example, are innumerable among these partners, many of whom are eager to fund special programs and even some routine needs (brochures, web designs, orientation "supplies") at colleges and universities. Contact with your campus's cooperative education office and, again, development/advancement office may lead you to some interesting partners who are eager to support your program.

Technology

Among these four issues, we should be clearly at the forefront of the discussions of technologies and institutional needs. Technical communicators possess a wealth of knowledge about technological abilities and inabilities, about pathways to success and to disaster, about user needs, and about innumerable other facets of this extraordinarily complex and critical issue. Indeed, as much as any other discipline, perhaps ours is one that sees the intersection of technology and human needs most clearly. Yet article after article in publications such as the Chronicle for Higher Education, the Journal of General Education, and New Directions for Higher Education offers no contribution to this discussion from members of our profession.

Conclusion

Clearly, we need to be more involved in the workings of higher education if we want to be a bona fide institutional constituency. When we publish on these topics only in technical communication journals, we are, in effect, preaching to the choir. And, while there is always some danger in publishing "outside our field," many of these forums require little scholarly effort, although they do require research and collaboration. Investigating institutional issues like diversity, adapting to changing expectations for funding our programs' priorities, looking for new partners to help us get our work done, and contributing to the discussions in higher education (especially regarding complex issues that have been central to our discipline) will surely mark us not only as genuine participants in higher education but also as good citizens of that domain.

Tracking and Maintaining Communication With Graduates of Technical Writing Programs: What Can Former Students Tell Us?

Julie Dyke **New Mexico State University**

As the demand for technical communicators increases and the rise of technical communication graduate programs, majors, and minors parallels this demand, assessment of our curricula and pedagogical practices is imperative. While we hope that our current classroom practices, and the theories governing those practices, are preparing students to succeed as technical communicators within industry, often we do not have measures to assess how effectively we have prepared our students for the workplace. Once students graduate and enter the workforce, often they lose touch with the academic sphere and leave us wondering if their experiences in our classroom will provide them with the relevant rhetorical knowledge, problem solving devices, and skill sets needed in their new academic settings.

The lack of communication between former students and teachers of technical communication is unfortunate, for they are the best evaluators of our pedagogical practices and program designs. Contact with students who have graduated and work as technical writers within industry would not only provide a valuable source of assessment for our teaching, but in addition it could help keep us abreast of changing trends in various fields of technical communication, provide useful information pertaining to technological skills in the workplace, and furnish contacts and networking opportunities for other students looking for internships and jobs.

Some technical communication programs have recognized the value in keeping contact with graduates and thus implemented tracking programs. This paper will explore these methods of tracking and maintaining communication with former students.

Tracking Graduates through Technology

With the rise of computer use and electronic communication, several technical communication programs rely on technology to maintain contact with their graduates. Methods such as email, alumni listservs, alumni websites or pages linked to department websites, and databases can be relied upon to keep in touch with students who have gone on to the workplace.

Tracking Graduates through Publications

Alumni magazines, such as *PosTComm,* published by the University of Washington's Technical Communication department, serve as one way to facilitate communication between alumni and current students and faculty. On a smaller scale, alumni newsletters and department newsletters with an alumni column can also enable graduates to keep in contact with our programs.

Tracking Graduates through the Society for Technical Communication

Depending on the location and size of Society for Technical Communication chapters, events such as monthly meetings, regional and national conferences, and chapter-sponsored activities may serve as ways to keep in touch with alumni.

Tracking Graduates through Other Methods

In addition to tracking graduates through the use of technology, through publications, and through Society for Technical Communication events, there are others methods we can employ to maintain contact with alumni. Department-sponsored networking events, such as a recent graduates panel, can provide faculty and current students the chance to interact with graduates. Soliciting business cards from recent graduates and posting these cards on departmental bulletin boards is another way for us to keep track of where our students go. Conducting exit interviews with students about to graduate can provide us with contact information and job plans. Another option includes obtaining the results of alumni surveys from the campus Alumni Office.

An Agenda for Building Technical Communication from the Ground Up

Carolyn Rude **Texas Tech University**

In the workplace, in graduate schools, and in the academic marketplace, the demand for technical communication graduates exceeds the supply. More than one school has estimated a 10:1 ratio of jobs and graduates for the workplace. Graduate programs have capacity that exceeds the available students. Last year's MLA jobs list included more than 80 professorial positions for specialists in technical communication, probably 3 to 4 times greater than the number of new Ph.D. graduates with this specialization.

Although these gaps are good news for current students, who can leverage good salaries and who enjoy good location choices, and although the gaps allow academic programs to use good job prospects as a recruiting tool, the gaps are too wide to be good news for the field as a whole. When the pool of capable graduates is too small for the need, industry must substitute weak or unprepared graduates. The shortage may in part explain industry complaints about poorly prepared graduates. As graduate schools compete for the same students, the cooperation and mutual support that have marked this field may develop into wariness and unproductive competitiveness. The academic part of the field should also be stronger if professors have chosen technical communication and not defaulted to it because jobs were unavailable in their preferred specialization.

The field's demographics also suggest a need to develop the pool from which we prepare practitioners and academics. The field seems nicely balanced in gender (though increasingly dominated by women), but it is very Caucasian in both the workplace and academe. If the field wants to continue to claim that it is welcoming, it will need to invite a more diverse group of people in.

These problems can be solved only if we develop the size and character of pool of students who enter technical communication at the undergraduate level. Recruitment needs to start at the high school level, with the goals of making the career and opportunities more visible and of recruiting a larger and more diverse group of undergraduates who will become both the practitioners and academics of the future. This is a long-term solution (and not the only one— creating opportunities for career changers should also be part of a recruitment strategy).

An agenda for high school recruitment might include these components:

- Development of career information materials beyond the STC brochure and scattered websites at different universities and career centers. The Summit has considered this project, and a project may be underway, but ongoing development and improvement will be necessary.
- Systematic entry into high schools and community colleges through career fairs, presentations to counselors and English teachers, and perhaps some shared teaching.
- Summer mini courses and workshops for high school teachers.
- Ongoing STC support of high school teachers at summer institutes.
- Development of course materials with high school teachers that meet state requirements for English.
- Early admission courses in technical communication for advanced high school students.
- Particular attention to high schools with strong minority enrollments.
- Organization of and participation in science fairs and writing fairs.
- Contacts with community leaders who promote literacy and citizenship. Joining the "speaker's bureau."

Recruiting for Bachelor's Programs in Technical Communication

Laura J. Gurak **University of Minnesota**

To make recruitment work at the graduate level, to ensure well-prepared academics, to welcome and encourage a diverse group of academics and practitioners, and to develop qualified technical communicators for the workplace, we need to attend to the first entry point for the study of technical communication.

Recruiting undergraduates for the University of Minnesota's B.S. in scientific and technical communication has been a challenge. Our Twin Cities campus is split between Minneapolis and St. Paul. We are located on the St. Paul campus, housed in the College of Agriculture, Food, and Environmental Sciences. We are the only humanities-type program in this College. Although we attract students from other majors within the College, we also have the potential to attract students from majors that are located in Minneapolis, such as English, other liberal arts, engineering, computer science, and so on. Yet when these students find us, they tell us that we are the "best kept secret at the University." Unlike many of these other departments, we are small, have few large lecture courses, and encourage a close relationship between students and faculty.

One of our first steps in undergraduate recruiting was to make ourselves known within the University. We obtained an email list of students in the College of Liberal Arts who had not yet declared a major, and we sent them an email message. We ran ads in the campus paper. We sent flyers to the premajor advisors in other departments and colleges. We re-energized our undergraduate student club, and as they became more active in university-wide activities, our name and major also became more widely recognized.

We also became involved in external activities, such as the Twin Cities Regional Science Fair. This event gave us a chance to present ourselves and our major to science and technology oriented science students (and their parents) from across the state.

These activities have begun to pay off. Yet even so, the incredibly robust technology sector of the economy makes it difficult sometimes to convince students of the need for a bachelor's degree. Minnesota currently has the lowest unemployment rate of any state (approx. 2.1% as of June 1999). The high technology, biomedical, banking, and other sectors are strong here. We like to say that we have at least 10 job postings for every student we graduate. Students can basically take their pick of jobs.

Perhaps the most major recruiting issues in technical communication are at the graduate level. But even undergraduate programs are facing similar economic pressures. In both graduate and undergraduate students, there is an increased desire for distance delivery of courses. How much do we comply with these requests? How much of a degree should be online? And, since we know that the economy will not always be this strong, how can we encourage students to take a long view of their careers and their education?

Looking to Ph.D. Students for Help with Recruiting Issues: What Factors Shape Applicants' Decisions?

Eva Brumberger **New Mexico State University**

Current Ph.D. students can provide vital information for program designers, for those investigating the decline in applications and enrollments, and for those recruiting new students. They can offer first-hand explanations of the factors that shaped their decisions during the application process, including their reasons for applying, their plans upon completion of the program, and their criteria for choosing a particular program. For example, as an applicant, I had very definite criteria in mind as I decided where I would apply. As I got farther into the application process— visiting campuses, meeting faculty and students, compiling detailed information about each program— my priorities shifted somewhat, but not dramatically, perhaps because I had researched the programs fairly thoroughly before beginning the application process. However, there were factors that had been central to my decision of where to apply— cost of study and amount of stipend, for example— that figured much less in my final choice of programs.

In order to gather data about current students and their decisions during the application process, I conducted an email survey of Ph.D. students at seven programs: Carnegie-Mellon, Iowa State, Michigan Tech, New Mexico State, Rensselaer Polytechnic, Texas Tech, and University of Minnesota. The survey inquired about respondents' backgrounds (occupation, undergraduate and master's major, how they learned about the field), as well as their career goals. In addition, it asked respondents to rate several factors in terms of their importance during the application process. Although applicants to Ph.D. programs in Professional/Technical Communication come from a wide range of backgrounds, some patterns were evident.

I received responses from 43 students. The largest group (45%) of respondents was between the ages of 30 and 39; one quarter were 40-49 old, while approximately one-fifth were 22-29 years old. Over three-quarters of respondents were women.

Respondents came from a varied employment background, and some listed several previous occupations. Three professions were particularly popular: technical writer/editor, instructor/professor, and student. Over a quarter of respondents had experience as a technical writer or editor. Approximately one-fifth of respondents worked as an instructor or professor before pursuing a doctorate, some of them full-time, others as adjuncts. A full quarter of respondents applied to doctoral programs directly from a master's program. Respondents came primarily from four types of master's programs: Rhetoric and Composition (33%), English Literature (23%), Business and Technical Communication (21%), and Education (4%). The majority were English majors as undergraduates. These demographics may suggest that recruiting efforts are reaching a fairly narrow segment of the population, with only a handful of individuals coming to the field from technical majors or professions.

Many of the respondents learned of the field of professional/technical communication during their master's work, typically from faculty members or fellow students. Approximately one-fifth cited the workplace as providing information, but only a handful listed technical communication practitioners, suggesting that the information came from other workplace sources. Interestingly, printed materials from graduate programs were only mentioned by two respondents; they clearly did not play a significant role in recruiting individuals to the field of professional/technical communication. The results suggest that programs could attract students through more extensive networking with practitioners and stronger industry/academy connections.

As one might expect, most respondents indicated that they chose to pursue a Ph.D. in professional/technical communication because of their interest in the field. However, over a third also cited job prospects as a deciding factor in their choice of program and degree, particularly if they intend to seek an academic position. Several respondents also mentioned the interdisciplinary nature of professional/technical communication as important.

Many factors influenced students' decisions regarding where to apply for the Ph.D. Respondents cited faculty reputation and overall program reputation as two of the most important factors, again suggesting the central role of networking. Also listed as important were correspondence with faculty members, actually meeting faculty members, and course requirements. Geographical location played a very significant role in the application process. Almost one-fifth of respondents indicated that they only applied to one institution, chosen for its location and nothing else; several of these individuals listed job and family constraints by way of explanation. The least important factors during the application process were the number of transfer credits allowed, printed materials, and departmental websites. Interestingly, none of these factors changed markedly in importance during the application process; the same factors were important in applicants' final choice of program. These data stress the importance of personal contact between program faculty and prospective students during the application process.

Finally, respondents indicated a range of career goals, often suggesting that they expect to hold more than one position at a time when they complete the Ph.D. Most plan on pursuing an academic position: almost as many respondents will seek a position with a research emphasis as will pursue a teaching position. Approximately one-quarter of respondents expect to work as consultants, some in conjunction with an academic position. About 20% plan to look for work in industry, the majority of those in management positions rather than research or writing positions.

The survey results, although limited in their scope, offer some information relevant to the recruitment of new students and also to the design of graduate programs. They emphasize the central role that personal contact and professional reputation play in the recruitment process, while highlighting the limited impact of printed and online materials. They also suggest that the interdisciplinarity and marketability of professional/technical communication may be key factors in attracting and retaining doctoral students.

Recruiting Qualified Students into Graduate Programs in Scientific and Technical Communication

Mary M. Lay **University of Minnesota**

Graduate programs in scientific and technical communication on Ph.D. level have spent the last ten years establishing their identity and building curricula and faculty. They have created graduate seminars that explore the link between rhetorical theories and science and technology, defined appropriate dissertation topics for students, and recruited the next generation of scholars, teachers, and researchers. However, over half of these programs either report that they are not able to recruit the number of students they wish, that the quality of students seems disappointing, or that students are unable to articulate why they choose such programs. Moreover, graduate programs compete for the same students from a pool that is too small.

Students who enter our graduate programs weigh several features when they select which programs to apply to and which to accept: perceived programmatic strengths and faculty interests; impressions from personal meetings with faculty and graduate students already in the program; specific program requirements; number of allowable transfer credits; typical time to complete coursework; stipend amounts; and teaching assistant load. However, we know much less about why these students considered a Ph.D. in the field to begin with. What was the appeal of the subject and the potential academic or industrial career in the field? How do or should universities, collectively, represent this career to potential applicants? In this flourishing high-tech economy, are positions in industry contributing to the decrease in applicant pool, despite the number of excellent academic positions that will be available after graduation?

The great diversity of backgrounds among graduate students makes it difficult to identify how they learn about our programs and why they select this route to an academic or industrial career. For example, they might have undergraduate and masters degrees in such fields as soil science, physics, mechanical engineering, English, speech communication, and clinical psychology, to name just a few from the University of Minnesota program. Among those who have undergraduate and masters degrees in English, some have already taught in non-tenure track position as instructors and want to further education, job security, and opportunity to teach beyond first-year composition. Other potential graduate candidates seem to dismiss the prospect of getting a Ph.D. in rhetoric/technical and scientific communication because they envision a future of teaching the same technical writing course year after year or fail to see how a Ph.D. would be a necessary accomplishment for a position in consulting, industry, or government.

Directors of graduate programs in scientific and technical communication need to identify ways to educate more potential students about the benefits of the Ph.D. and to recruit more qualified students to fill our future faculty positions. We must publicize precisely what distinguishes each of programs, subscribe to GRE lists, design informative Web pages, and share ideas with colleagues across the country. I hope that this panel will serve as a catalyst for doing so.

Special Presentations

Guest Speaker: Peggy Durbin

Peggy Durbin is Group Leader at Los Alamos National Laboratories. She entertained us to laughing-out-loud as banquet speaker by telling stories of her experiences as a technical writer.

Distinguished Service Awards: Thomas Warren and Laurie Hayes

Thomas L. Warren and Laurie S. Hayes, longtime members and officers of CPTSC, were given Distinguished Service Awards. Their remarks reflect the history and achievements of CPTSC and suggest the characteristics that have defined this organization and its members.

Glamour and Prestige in Technical and Scientific Communication *or* I Say It's Spinach, and I Say the Hell with It

Peggy Durbin **Los Alamos National Laboratory**

The difference between what we expect and what we actually get can often disorder our minds. You may recall the famous cartoon by Carl Rose from the *New Yorker*. A mother is trying to get her child to eat. The caption, by E. B. White, is "It's broccoli, dear." And the child replies, "I say it's spinach, and I say the hell with it."

So it is in technical communication. In my years as coordinator of the graduate internship program at Los Alamos, I've found that students expect broccoli in a spinach world.

The glamour and prestige

From hearing other technical communicators, in their classes, and from their reading, students already have a pretty good idea of what life is like in the world of technical communication:

- they work with cooperative people in pleasant, peaceful surroundings;
- if they're working on paper, they produce high-visibility products with the flash of *Wired* magazine, the technical content of *Scientific American*, and the readability of *Newsweek*;
- if they're working in multimedia, their CDs are impeccably designed, easy to use, and full of features that make their users want to give them kisses;
- if they're working online, they are regarded as the Frank Lloyd Wright of information architecture;
- they work 8 hours a day and go home at 5:00 p.m.;
- they get paid big bucks.

What characteristics must they have to survive—and even enjoy— life as a technical communicator? After 15 years in the field, I've identified the ones that have helped me the most:

- flexibility,
- knowledge,
- unselfishness,
- humility, and
- resourcefulness.

A communicator is flexible

Changing deadlines and priorities, not to mention lack of planning on the part of other people, force the technical communicator to be flexible. You're not always going to be working in a stable environment.

A major assignment for me was a seven-year stint as the writer-editor in the waste management group. One morning as I was working peacefully on a document, the group leader bounded in at 8:30 and said he needed a speech on progress in waste management. I said I could write it. When did he need it? He said he was going to deliver at 10:30 that morning and could I hustle on writing it because writing speeches made him sick and giving them made him even sicker and would I mind giving the speech as well. I said yes to writing, no to delivering.

He rounded up two engineers and herded us all into his office. He sat me down at his computer, and while the three of them shouted ideas at each other, I took notes on everything I heard or thought I heard.

The task was made more difficult because all three of them kept leaning over me and pointing at things on the screen, which obscured what I was trying to write, and the group leader stood behind my chair and rocked me and it back and forth saying, "How are you doing? Are you finished yet? How's it coming?" Only my nobility of mind and fear of arrest prevented me from clobbering all three of them.

A communicator is knowledgeable

Of course you know about grammar, punctuation, usage, and spelling. You have a good grasp of the principles of technical communication, including design, audience analysis, and problem solving. If you think you're prepared, think again.

A friend at Bandelier National Monument was giving a talk on beavers to a class of elementary school kids. She even had a beaver that a taxidermist had prepared. She told the kids everything about beavers: what they ate, how they built dams, where they lived, how they lived, everything a little kid could possibly know about beavers. She had a ready answer and anticipated every question. Except one. A little kid raised his hand. "What's the beaver stuffed with?" As a technical communicator, you'd better know what a beaver is stuffed with.

I was heading to the break room when an engineer wandered down the hall. He was holding a book and looked as if he had been clipped with an iron pipe. He held up Title 40 of the Code of Federal Regulations, Protecting the Environment. "There's something wrong with this sentence," he said. I looked at it. "The sentence has no main verb," I told him. "Oh. Will you diagram it for me?" I hadn't diagrammed anything since eighth grade, but I wasn't about to admit it. "Sure," I said. I took the book, went home, and scrounged my old outlining guide from the bookshelves, and outlined the sentence. I gave the result to him the next morning, and he was pleased.

Our group operates a grammar hotline as a service to the Laboratory, and most of the questions are pretty straightforward: confusion about spelling, where the comma goes, whether it's *use* or *utilize*. But once someone called and needed to know how many Stations of the Cross there are. You never know why someone might need this information; the requester was probably in one of the international security groups, and if I knew why she was asking the question, she'd probably have to shoot me. "Fourteen," I said, and let it go at that.

I have at my desk *Bartlett's Familiar Quotations*; an almanac; and a bookmarked web page that has links to information on art; business; criminal justice; education; electronic books, magazines, indexes, and newspapers; government; law; medicine; health; psychology; reference materials; style guides; and weather. You can't be too careful.

A communicator is unselfish

You never know when a piece of information is going to be valuable to someone. I was helping a colleague edit a lengthy piece called "A Brief History of Radioactive Waste Management at the Laboratory," and learned that in the early days the Laboratory operated a laundry at one of the sites. The laundry washed radioactively contaminated clothing, and the author of the document wrote that Ivory Snow was ineffective in removing plutonium contamination from clothing (it's great on those dainty washables and grass stains, but those stubborn radionuclides require something stronger).

For some reason, the whole notion of Ivory Snow and plutonium tickled me, and I passed the passage along to the people I supervise. One woman was also tickled and ran the information as filler in the newsletter she edited. One day I got an excited phone call from a man who was doing decontamination and decommissioning at the site of the former laundry. He was delighted and relieved to read about the Ivory Snow, because, he said, some of the other detergents used to remove the contamination were worse than the contamination itself. He needed to know what other detergents were used back in the late forties and early fifties. I connected him with the author of the report and felt good for having spread the news, albeit ironically, and for having indirectly done some good.

A communicator is humble

It's an odd profession. You want to be in a field in which your job is to make somebody else look good, and you're not going to get a lot of credit— if any— for what you do. Sometimes you'll get your name published as the editor of a piece, but more often, you will be anonymous.

For example, I worked on a high-visibility publication. I took a mess of a narrative from the author (whose tone varied between vitriolic hatred of anything done by the federal government and utter contempt for his audience) and rewrote it, coordinated the reviews and approvals, design, and publication— in short, that document was my baby. Everyone loved it and praised the author for his splendid work. And I got my name on the inside front cover as the editor.

It hurt for a little bit until I remembered that it's not my job to be the star. It's my job to make other people the stars, and in that sense, I had done the best at what I'm supposed to do.

A communicator is resourceful

Sometimes you have specific instructions on what to do to produce a product. At other times, you must rely on intuition, detective work, telepathy, dumb luck, and perhaps a good skill in parody to get you through.

When I was working in waste management, the lead engineer discovered a piece of equipment involved in incineration that nobody knew how to work. She asked everyone about it so that we could write a procedure for an operating manual.

"Where's the operating manual that came from the manufacturer?"

"It's gone."

"Who knows how to operate the equipment?"

"Wiley."

"Well, go get Wiley."

"We can't."

"Why not?"

"He's dead."

The engineers, technicians, and I scrounged information and worked by trial and error to determine how the equipment worked. We completed an operations manual , and if someone else dies, heaven forbid, operations will continue.

Sometimes instructions for a project are very vague. One of my clients would give me a document with a yellow stickie attached stating "Make me look smart."

Another would hand me a document from a federal agency that required a response and say merely, "Slime 'em."

I know from long experience with the feds that form is often more important than content, and if it sounds good to them, you're usually in the clear. I rely on a good ability to parody federal prose— cases in point being my "Document Character, Punctuation Mark, and Space Count Reporting System" and "Toaster Settings and Palatability Standards: Bread Variants and Concomitant Palatability Standards, Including Fruit and Nut Spreads, Fruit-like and Nut-like Spreads, and Imitation Fruit-like and Nut-like Spreads." So far, no one's ever called us on what I've written in federalese.

Conclusion

The world of technical communication may not always be glamorous but it's never boring. A communicator who has the tools of flexibility, knowledge, unselfishness, humility, and resourcefulness will always be prepared and will always be able to distinguish the broccoli from the spinach.

Thomas L. Warren

Distinguished Service Award 1999

Thomas Warren

Professor of English

Oklahoma State University

Thank you very much for awarding me the CPTSC Distinguished Service Award. I am proud to be recognized by colleagues and to join the company of Tom Pearsall, Virginia Book, and Marilyn Samuels, who received CPTSC's first Distinguished Service Awards in 1998.

Remembering the First Meetings

Steve has asked me to recount some of the early days of the organization and I am glad to do so. These early meetings were usually marked by some unusual events, and I want to comment on three of these meetings.

1975, Boston University (but where was the hotel?)

My first meeting was in 1975 at Boston University. I missed the first meeting (1974) but had read of its happening and ordered the proceedings. In 1975, we were an unnamed organization that met to provide support for each other— the *each* being directors of technical communication program. We were housed in a hotel just over the Green Monster at Fenway Park. The hotel was the Fenway something— I forget exactly what it was called. We had breakfast at the hotel and then walked to the university for our meetings. Hal Bookbinder had received a large grant to run a writing for publication workshop, and he and Tom Pearsall decided to use the venue for the second CPTSC meeting. At this meeting, I met a number of interesting and helpful people— like John Mitchell from U. Mass., Dick Wiegand then from Sundstrand and now at Boeing, and Beekman Cottrell, the only person I ever knew who attended these meetings and had never taught a course in technical communication or directed a program (he was Shakespearean). He just liked the ambience of the meetings.

The evening of the first day, we returned to the hotel talking about dinner plans. As we walked along, some of us commented that it sure was a long way **back** to the hotel. In fact, we had walked right past it. While we were gone, the hotel had become a Howard Johnsons, complete with marquee change and everything. We were a bit embarrassed. I don't remember for sure, but I think they had even repainted the front. It is an odd feeling to leave one brand of hotel and return to find another.

1976: Naming the Organization

The third meeting (1976) was momentous because we decided that we needed to have a name for the organization. We were up until then a support and drinking society. I think it was 8 people gathered around a very large table at Colorado State to put some organizational structure in place. We needed a name. We decided on two ground rules: (1) No one, under any circumstances, could pronounce the acronym, and (2) we had to disassociate ourselves from the Society for Technical Communication. So, as we were meeting as a council, were program directors, and worked in technical and scientific communication, we became CPTSC.

That meeting was also notable because there were no proceedings. In the early days, we would tape record the presentations and discussions, prepare a transcript (the host would), send it to the speakers for comment, and then publish. Somehow, the tapes were lost from that meeting. We decided on a hierarchy of President (Tom Pearsall), Vice-President (Tom Warren), Secretary/Treasurer (Jim Connolly).

1979, Stillwater (but where was the staff?)

The last meeting I want to talk about was the 1979 meeting in Stillwater, hosted by Oklahoma State University. Stillwater is 75 miles from either Oklahoma City or Tulsa. Attendees would fly into one or the other and take a shuttle van to Stillwater. One van load, traveling about 10 pm, had a breakdown, and you cannot imagine how dark dark is until you see dark in Oklahoma. We carried on the tradition of the evening banquet, scheduling it for the Stillwater Country Club. At 4 pm on the day of our banquet, all the help walked out on strike. I was amazed to see faculty and city officials serving our dinner.

The Spirit of CPTSC

Tom Sawyer of the University of Michigan is well known for his work in getting engineers to make oral presentations. He would make them "heave themselves up on their hind legs," (as Horace Rumpole says) and give a briefing. He pointed out the two acts of courage the students faced. The first was to actually get up and the second was to sit down.

So, thank you very much for this honor.

I want to conclude by commenting on the true spirit of CPTSC as we discovered it in the early days. That spirit is one of helping each other. Program directors are still somewhat isolated in their departments (I counted about 93% being in humanities departments). Where would they go for the support and the information that they needed? We wanted CPTSC to be that place. ATTW was and is an organization mainly for teachers of technical writing service courses. STC is for practitioners (although about 10% are academics). CCC is for composition people. In English departments, especially, technical writing is considered by many literature people to be something less than legitimate. Our students know Chaucer (they claim)—but he ain't hiring (we mutter). Our classes are full— both the service courses and the majors courses. We are often perceived as being a vocational program— something akin to teaching welding. Where can we get our questions answered? Where can we go to be with other directors and get our enthusiasm recharged? When we began CPTSC, we decided that this was the place. And I am glad to see that that spirit has not changed.

We would gather and exchange ideas with one another about our programs, but there was always a price. If you come to me and say that you would like to begin a program, everything I have in the files is yours— course syllabi, bibliographies, exercises, the works. But at that price. Because, if someone comes to you, you must be as free and generous as I have been with you. That is the spirit of CPTSC.

Thank you again.

Laurie Schultz Hayes

Distinguished Service Award 1999

Laurie Schultz Hayes
Vice Provost for Undergraduate Studies
Professor of Speech Communication
Colorado State University

Thank you for that lovely introduction, Steve, and greetings, CPTSC colleagues. I am sincerely pleased, flattered, and honored to be among you this evening in Santa Fe, at this, my 12th CPTSC meeting. I'm pleased that you have valued and remembered my participation and service. Flattered to be recognized with this awesome award. And definitely honored to be included in the special company of the previous winners— Tom Pearsall, Virginia Book, and Marilyn Samuels, and now, tonight, Tom Warren.

I also appreciate the time and space to say a few things. Steve has asked me to reminisce a bit and I will— you know how hard it is to keep a speech professor quiet. Those of us who study classical rhetoric, also know that epideictic is not just "thank-you-and-remember" ceremonial discourse, and so I welcome as well the opportunity to moralize a bit— it's hard to keep any teacher quiet!

First to the reminiscing. My membership in CPTSC is full of many good memories, and I have seen and learned a lot.

What have I seen?

I first met some of you in 1983 when Tom Pearsall, then my department head at the University of Minnesota, said that I, a speech-communication-type in his Rhetoric department, should learn what technical and scientific communication was all about. He sent me to Lincoln, Nebraska, for the 10th meeting of CPTSC, hosted by Virginia Book (That meeting was so small that all our sessions were together and around a group of tables in one big room.) The meeting the following year (1984) was the last time that CPTSC met in Santa Fe; I wasn't here with you then, because Tom Pearsall sent himself to that meeting! But as I look around the room, I remember attending many other good meetings and seeing many other places with many of you: Portland, OR and cruising the Columbia River (1986); Orlando, FL and spending a fascinating day standing in various queues and then eating dinner *in* the aquarium with a group of CPTSC women at the Epcot Center (1987); yachting up the Genesee River in Rochester, NY and turning around to avoid a storm coming across Lake Ontario (1989); and San Diego, CA, cruising Mission Bay on a paddle-wheeler chartered by Sherry Little (1990). Water hasn't always been our theme together. We've explored the old mining town of Idaho City as part of our meeting in Boise, ID (1992), relived a bit of the old South at a plantation at our meeting in Charlotte, NC (1993), hiked to an old ranch site at Dripping Springs in the Organ Mountains near Las Cruces, NM (1994), and really delved into the past at the Indian burial mounds near Oxford, OH (1996). And then how could I ever forget the meeting in Cincinnati, OH where Sam Geonetta struggled valiantly to keep us at the program sessions while most of us were rushing back and forth from the televisions in our rooms to watch the Anita Hill/Clarence Thomas Supreme Court Hearings (1991)? And I even had a chance to see many of you in Minneapolis, MN when I was one of your hosts (1988).

What have I learned?

You've helped me understand the complex challenges for education in technical and scientific communication. I've learned how successful programs come in all different shapes: they can be one course, or a group of courses; can lead to a certificate, or an Associate's degree, a Bachelor's degree, Master's, or even a Ph.D.

I've learned how our programs are informed by different heritages: some of us are in English or Composition departments; some, like my first CPTSC connection at the University of Minnesota, are in land grant university departments connected with agriculture and natural resources, rooted in the technology transfer of cooperative extension and experiment stations; others are in schools of engineering or institutes of mining or technology; then there are those of you whose home is in colleges and departments of business, or, as I know now at Colorado State University, in departments of Journalism; and then there are those almost unique departments like the Communications department at the University of Colorado, Denver, where the program includes Technical Communication, Broadcast Journalism, and Speech Communication.

And look at how the communications media have changed. When I first started working with you all, I remember my Minnesota colleagues telling me about the feasibility studies and technical reports they were having their students prepare and type. Shortly thereafter, we were filling a small office with a large computer and were beginning to do word processing. Then we got grants for computer labs with lots of small computers and were teaching students to write collaboratively and test user manuals; now you are all becoming webpage experts and CD-ROM producers, helping your students with graphic design, video streaming, real time audio, and electronic schemes for all kinds of information management.

And then there are the many new programs across the country and many new faces in this room and on the CPTSC membership lists. One of the primary goals for those of us who have served on your Executive Board has always been to assist those who were forming new programs or hoping to sustain existing ones. The purpose of all those years we spent setting up the Program Review Board was not to keep us a small elite clique, but to reinforce the quality and increase the quantity of programs everywhere. I'm proud to see the success of those efforts represented by so many of you in this room tonight.

I've also learned that some principles remain unchanged. At last night's opening Keynote Address, Johndan Johnson-Eilola shared with us that in a lot of his work in interface design he doesn't say "rhetoric," he says "audience." Well, I will continue to say, not only "audience," but "sender," "message," "purpose," and "channel." These, too, remain. And in very important ways.

So now let me preach or teach a bit.

What do I want to say?

When my husband and I were first married, we lived in a two-bedroom apartment in a brand new brick three-story walk-up building in Urbana, Illinois. Among the many things I remember about that building were the tenants who lived just below us, a young couple, with two small daughters. They seemed like nice people, although I used to blame them for the cockroaches that continued to come up through the walls into our nice clean spaces. One day as I was looking out the window to the street below, I saw the parents leaving, for a short while, I assumed, and I heard the young girls shout, *Don't forget us!* That was an odd phrase, I thought. But it, like several other phrases, has stayed with me for many years. And so tonight, I want to say, "Don't forget us."

In his gracious introduction, Steve described one of my roles in CPTSC as being that of keeping the group on its toes, calling attention to emerging trends. Tonight I'm not going to bring up new trends or challenges, but I am going to do a bit of reminding. Putting on another of my previous CPTSC hats, that of the organization's Archivist, I'm going to repeat a few themes that I have said in your midst before. And I will consider my legacy of service to CPTSC a success if you don't forget them.

Don't forget that technical and scientific communication is not just writing.[1]

The sender in a communication situation is not always a writer. Speaking and listening are important attributes of any communication situation. And I'm not just asking you to include oral communication in formal settings in your understanding. In their careers, our students will engage one-on-one in interviews, will participate in design teams of communicators, or as the only communicator in a team of technicians. Before you add just one more writing course to your programs, don't forget that oral communication competence is critical in the success of a professional communicator.

Don't forget that the messages we have our students create are not just informative, amoral communications .[2]

Messages can have multiple purposes and consequences. Do our students know how to do more than *Keep it accurate, simple, and clear?* Don't forget to teach them to ask key questions about their communication tasks. Do they know *who* is asking *what* to be communicated and *why*? Do they know the effects of those messages on specific audiences and on society at large?

Don't forget that the channels of technical and scientific communication are not just computers.[3]

A few minutes ago, I rehearsed some of the advances in communication media that have occurred in the past 15 years, but I didn't name them all. I have seen many of our programs and many of our programs' consumers insist that we teach how to use particular computers and their software. But technical and scientific communication is not just computer literacy. Professional communicators should be aware of, and ideally competent in, those communication media which impact our seeing more than text, and our senses other than vision. Our communication can have pictures and drawings that are moving or static, our text can be more carefully selected than those words which can fit on a 17" screen, and at a minimum, we can be sensitive to how sound is an important channel for successful communication. (And while we can leave taste, touch, and smell to the more adventuresome among us, their equivalent importance should not be ignored!)

Don't forget that our students are not just in our classrooms.[4]

Steve Bernhardt has already referred to my challenge some years back that we should start thinking about distance education. At that point I was serving on an all-university task force looking into the future of distance education at the University of Minnesota, and it was quite clear to me that administrators were beginning to make big decisions about distributing learning beyond campus borders. They were looking for courses to offer, faculty who would teach those courses at a distance, and places to spend university resources. I urged us to move to the head of the line, not only in proposing our courses for those programs, but in helping our faculty colleagues to become more proficient in the preparation of their educational materials for alternative modes of delivery. If we are preparing our students to be professional communicators, who is better prepared to help our colleagues or even to do it ourselves, I asked. Six years later, and now at a different university, I can report that the need is still there, and time is slipping away fast. As Vice Provost for Undergraduate Studies at Colorado State University, part of my responsibility is to shepherd our resident and distance educational programs into the 21st century. Looking across the country, it is amazing, and sometimes embarrassing, to see how few communication faculty are involved in teaching students at a distance or assisting the faculty development programs on their campuses. Is it any wonder that our programs and faculty have to struggle for administrative visibility and respect when campuses have to hire outside consultants for faculty development in technical communication and never see our courses on their program lists?

Don't forget that our students are not just English speaking, middle class, able-bodied people of European descent.[5]

Do our current knowledge and practice privilege and exclude around the categories of race, class, gender, ethnicity, and physical capability? If we are going to be good teachers and good citizens, we need to listen to industry, but don't we also need to go beyond our industrial advisory boards to take the pulse of the technical and scientific communication discipline? We must think critically about what we teach to whom and ask about the history of that knowledge and question the inclusiveness of its future.

Sender....message....purpose....channel....audience....don't forget them. In the coming years, while we may continue to debate among ourselves about whether or not technical and scientific communication is a discipline and how it is to be understood and appreciated in the organizational structures of higher education, we cannot deny that it is an interdisciplinary profession built on a solid foundation of rhetoric.

Thank you, once again, for honoring me with this Distinguished Service Award and for letting me share a few thoughts with you on this special night. I value your friendship and professional support and look forward to continuing our relationship in the future.

Endnotes

[1] L. S. Hayes, "On Not Forgetting Oral Communication When Reinventing Programs in Technical and Scientific Communication," *Proceedings 1996 of the Council for Programs in Technical and Scientific Communication*, Socorro, NM: New Mexico Institute of Mining and Technology, 1997, 54–55.

[2] L .S. Hayes, AA High Quality Graduate-level Degree Program in Technical and Scientific Communication: A Series of Challenges, @ *Proceedings 1986 of The Council for Programs in Technical and Scientific Communication*, Rolla, MO: University of Missouri, Rolla, 34–35.

[3] L. S. Hayes, "Reaching Out: Designing and Teaching a Graduate-level Course in the Theory and Research of Media Selection, @ *Proceedings 1987 of The Council for Programs in Technical and Scientific Communication*, Rolla, MO: University of Missouri, Rolla, 35–44.

[4] L. S. Hayes, "The Future Role of Scientific and Technical Communication Faculty and Scientific and Technical Communication Programs in Distance Education Initiatives," *Proceedings 1993 of the Council for Programs in Technical and Scientific Communication*, Menomonie, WI: University of Wisconsin, Stout, 1994, 49–50.

[5] L.S. Hayes, "Multiculturalism, Postmodernism, and Radical Education: Whither Technical and Scientific Communication Programs?" *Proceedings 1994 of the Council for Programs in Technical and Scientific Communication*, Houghton, MI: Michigan Technological University, 1995, 7–8.

Appendixes

Distinguished Service Awards

Program

Minutes: Business Meeting

Treasurer's Report

Conference Participants

Members

Distinguished Service Awards 1999

Selection Criteria[1]

Persons nominated to receive the Distinguished Service Award will in general possess the following characteristics and attributes:

1. They must be members of CPTSC at the time of their nomination.
2. They should be members of long standing in CPTSC with at least seven consecutive years of membership sometime during their careers. The DSSC can recommend exceptions to this rule but only for members of extraordinary merit.
3. Nominees must have made significant long term contributions to programming in technical communication. It is expected the DSSC will consider only members who have established significant careers in technical communication programming, working both on the local and the national levels. The key question will be, Have technical communication programs been significantly affected in a positive manner by this person's career?

Honorary Distinguished Service Award

The DSSC of the Executive Committee with the advice of the DSSC may from time to time choose non-members to receive an Honorary Distinguished Service Award. Such honorary recipients should have made significant contributions to CPTSC or to programming in technical communication. This contribution could be either as a career long emphasis or as a significant special contribution.

1999 Recipients

Laurie Hayes

Laurie Hayes served on the Executive Committee, as Member-at-Large, and as Treasurer. She was a strong voice for fiscal prudence, and the continuing health of the organization is in her debt.

Laurie Hayes is remembered for working hard to get CPTSC to recognize that *communication* means more than technical writing— it includes speaking, graphics, media, and interpersonal communication. Her own work, first in communication studies and then in administration, helped chart the range of career possibilities for those in our field. She was thoughtful and well-spoken at our meetings, calling the group's attention to emerging trends such as distance education, well before most of us realized just how important this would become. She was instrumental in establishing the Program Review Board and helping develop the review instrument. She also had the foresight to establish archives at the University of Minnesota.

Tom Warren

Tom Warren served on the Executive Committee, particularly as President during 1979 and 1980. The organization bears his lasting imprint.

Tom Warren is remembered as being good at going to the core of discussions about the state of the profession and discipline. His work on the first directory of programs was instrumental in encouraging cooperation among universities and in detailing the early development of the field. He helped set the agenda for the development of the academic side of technical communication, and a strong contribution was the way he helped move industry and academe closer together through discussions and organizational activities. He is also remembered for having a great sense of humor and for creating an organization that was welcoming to new members.

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[1] Approved Austin, Texas, October 1997; Posted to the website March 1999.

Council for Programs in Technical and Scientific Communication
26th Annual Conference

Program

Thursday, October 14

6:30 pm Opening Reception, Plaza Resolana
Drinks and light food
Speaker
Johndan Johnson-Eilola. "Surfacing: A Genealogy of Interface Design and, Sometimes, Technical Communication"

Friday, October 15

Sessions, Plaza Resolana, 8:30-5:00

8:20 - 8:40 Welcome
Debbie Andrews, President, CPTSC with Local Hosts *Carole Yee* and *Stephen Bernhardt*

8:40 - 9:55 Keynote speakers
John R. Hayes and *Karen Shriver*
"How Good is That Doggie in the Window? Principles for Assessing Educational Experience"

Concurrent Sessions

10:10 - 11:00 **A. The Shape of Programs: Past, Present, Future**

Moderator: Pam Ecker

Teresa Kynell. Historical Applications in Technical Communication: What the Past Can Teach Us About the Future

Karen Rossi Schnakenberg. Looking to the Future: From Technical Communication to Information Design

Graham Smart. Where the Local Ends and the General Begins: An Important Issue for Professional Writing Programs

Paul M. Dombrowski. Mediating the Future: Our New Ph.D. in Texts and Technology

B. Programs and Technology

Moderator: Dan Riordan

Anna Marie Amezquita & *Linda Hays Welch.* Teaching Technical Writing In The Information Age

Marian G. Barchilon. Technical Communication's Added Value in the Distance Learning Environment

Suzanne P. Schneider. Should Technical Communication Programs Be Offered Through Distance Education?

Janice Tovey. The Role of Technology in a Rhetorical Situation

C. Spanning the Gap between Academia and Industry

Moderator: Carolyn Rude

- *Christine Abbott.* Integrating Theory and Practice Through Innovative Collaborations Between Academicians and Workplace Professionals
- *Locke Carter.* Bridging The Gap Between Industry and the Academy Through Cross-Disciplinary, Real-World Courses: A Solution for Today's and Tomorrow's TechComm Programs
- *Sherry Burgus Little.* Balancing the Theoretical and the Practical: The Use of Advisory Committees
- *James F. Stratman.* Academic/Industry Collaborations in Usability Testing: An Opportunity for Theory-Building or Burial Ground?

11:10 - 12:00

A. Programs' Changing Emphases

Moderator: Johndan Johnson-Eilola

- *Nancy Allen.* Closing Our Eyes to See: Incorporating Visual Thinking into Technical Communication Courses
- *Mary B. Coney & Judy Ramey.* How to Get Writing Back into a Technical (Writing) Communication Program
- *David Gillette.* Defining, Shaping and Working in Emergent Information Environments: Adapting Technical Communication Programs to a New Definition of Texts, Technology and Usability
- *Dan Riordan.* Rules, Communities, and Repertoires: The Changing Role of Texts in the Service Course
- *Clay Spinuzzi.* Erasure, Encroachment, and Assimilation: Examining Representations of Graphic Design in the Technical Communication Curriculum

B. Programs and the World Wide Web

Moderator: Deborah Bosley

- *Kelli Cargile Cook.* Shell Game: Is a Web-Based Courseware Tool in Your Distance Education Future?
- *Don Payne.* Web Design Courses: A Promising Future Role in Our Technical Communication Programs
- *Pete Praetorius.* Assisting Future Historians of Technical Communication Today: Toward A Less Ephemeral Web
- *Dale L. Sullivan.* Technical Communicators as Web Designers and Managers: Implications for Academic Program Development in Technical Communication

C. Let's Get Real: Programmatic Efforts to Meet Stakeholders' Needs

Moderator: Karen Schriver

Marilyn M. Cooper. Designing Technical Communication Modules for an Enterprise Based Approach to Engineering Education

Lisa Casali Daidone. Meeting the Needs of both Students and Local Industry: Writin' for Racin'

Elizabeth Pass & *Mike Zerbe.* Student Publications Groups: Meeting the Needs of Students and Industry

12:00 - 12:45 **Lunch**

1:10 - 2:00 **A. Identity: English Departments, Humanities, and Beyond**

Moderator: Mary Coney

Thomas Barker. The Technical Communication Curriculum: Beyond the Humanities Model

Jim Dubinsky. Mending Walls and Adding Gates: Intradisciplinary Collaboration and Building Programs that Work

William Macgregor. My Students or Yours? Escaping the Service-Department Role

Michael A. McCord. Training vs. Education: Technical Writing Programs within the Traditional English Department

Gerald Savage. Escaping "Two Cultures" Thinking in Technical Communication

B. Assessing Programs, with a Special Eye to Engineering Communication

Moderator: Marilyn Cooper

Dianne Atkinson. Program Design in Engineering Communications: Two Steps Forward and One Step Back

Marjorie T. Davis. Partnerships with Engineering: ABET, Accreditation, and Assessment

Linda Driskill & *Margaret Hundleby.* Technical Communication Programs in a Culture of Assessment

Marjorie Rush Hovde. Enhancing the Future of Technical Communication in Schools of Engineering and Technology: An Argument for Involving E&T Faculty in Communication Assessment

Steven Youra. Looking Back to the Future: Technical Communications, "Engineering Writing," WAC & WID

C. International Technical Communication

Moderator: Deborah Andrews

William O. Coggin. Developing a Global Technical Communication Program: A Work in Progress

Martin A. Settle & *Deborah S. Bosley.* Internationalizing Engineering Technical Writing Programs

2:20 - 3:10 **A. Identity: Who Will Technical Communicators Be in the Future?**

Moderator: Sherry Little

Jeffrey T. Grabill & *Elizabeth Sanders Lopez.* Future Purposes: Communities, Technologies, and Urban Program Design

Katherine Staples. Moving on Alone: Past, Present, and Future for the Two-Year College Technical Communication Program

William J. Williamson. Promoting Systematic Outreach to Established and Developing Programs in Technical and Scientific Communication: Taking Advantage of Past and Present Resources for Future Growth

B. Shifting Ways of Serving Clients

Moderator: Jennie Dautermann

Ann S. Jennings. Professor Becomes Trainer: Clues to an Inevitable Evolution during the 21st Century?

Molly K. Johnson and *Jacqueline S. Palmer.* Evaluating the Value-Added Aspects of Client-Based Projects: Student and Instructor Perceptions

Jennifer Craig Pixley. Context and Evidence: The Strengths of Problem Based Service Learning

C. Attracting, Retaining, and Keeping in Touch with Students

Moderator: Bruce Maylath

Jo Allen. Enlarging Our View of the Future: Claiming a Place for Technical and Scientific Communication in Higher Education

Julie Dyke. Tracking and Maintaining Communication With Graduates of Technical Writing Programs: What Can Former Students Tell Us?

Joint Presentation: Recruiting Challenges in Undergraduate and Graduate Programs in Technical and Scientific Communication

Carolyn Rude. An Agenda for Building Technical Communication from the Ground Up

Laura J. Gurak. Recruiting for Bachelor's Programs in Technical Communication

Eva Brumberger. Looking to Ph.D. Students for Help with Recruiting Issues: What Factors Shape Applicants' Decisions?

Mary M. Lay. Recruiting Qualified Students into Graduate Programs in Scientific and Technical Communication

Friday Evening

6:30 Cocktails and Banquet Dinner, Loretto Hotel, downtown Santa Fe

Highlights of the Day's Panels by CPTSC President Debbie Andrews

Guest Speaker: Peggy Durbin, Group Leader and Director of the Intern Program at Los

Alamos National Laboratory

"Glamour and Prestige in Technical and Scientific Communication, or I Say It's Spinach, and I Say the Hell with It"

Saturday Morning, October 16

9:00 - 12:00 Business Meeting, Plaza Resolana

Saturday afternoon outings

Bandelier National Monument and Los Alamos National Lab Museum

Minutes

Business Meeting, October 16, 1999

1. Approval of 1998 Minutes

Minutes of the October 1998 Meeting submitted by Jennie Dautermann were read and approved by the house.

2. Treasurer's Report

Treasurer's report submitted by Karen Schnakenberg was approved. Organization is in good financial shape and the books are in order. Treasurer's report was approved by the house.

3. Program Reviews

Carole Yee reported on several on-going program reviews. Requests for this service are growing and departments seem pleased with the results.

4. Links to Other Organizations

Reports on links to other organizations were presented by the following CPTSC representatives:

Summit of technical communication organizations Steve Bernhardt
STC Karen Schriver
INTECOM Tom Warren
ABET Linda Driskill, Margaret Hundleby

5. London 2000

Bruce Maylath, and Debby Andrews detailed the plans for the June meeting in London in connection with Forum 2000. University of Delaware is supplying space for the meeting, and representatives of international groups are also invited. Members interested in the June meeting met over lunch following the business meeting.

6. Publications

Carolyn Rude reported on Publications activities and proposed that a shift to web-based proceedings might be appropriate. Given the need for hard copies from some members, it was decided to experiment with both media this year and to return to this discussion in 2000 at Menomonie.

7. Web Site

Bernhardt described the situation with management of our web site and the need for an information officer (perhaps amending the makeup of the executive board to include such a person). Members were urged to offer suggestions about this issue.

8. Officer Elections

New Officers will be elected during this year and members were encouraged to consider such service. The immediate past president, Steve Bernhardt will be heading up the nominating committee.

9. Fall 2000 Meeting Invitation

Bruce Maylath and Dan Riordan are co-hosting the fall 2000 meeting at U. of Wisconsin-Stout. They described possible activities in Menomonie and the arrangements and invited the membership to the 2000 meeting.

Meeting was adjourned.

Treasurer's Report

CPTSC Treasurer's Report

January 1, 1999 to December 31, 1999

		Subtotals	Total	Balance
BALANCE FORWARD from US Bank of Idaho			$ 4648.87	$ 4648.87
INCOME				
1998 Conference at Lewes		$ 2483.02		
1999 Conference at Santa Fe		12523.00		
Dues				
1998-1999 dues	240.00			
1999-2000 dues	2,480.00	2720.00		
Misc. Income				
Exec Bd Dinner Lewes	30.00			
IEEE for mailing list	100.00			
		130.00		
Total Income			17,856.02	$ 22,504.89
EXPENSES				
1998 Lewes Conference				
Mousepads	407.77			
Awards & gifts	112.20	519.97		
1998 Proceedings		900.00		
1999 Conference				

CPTSC Treasurer's Report

January 1, 1999 to December 31, 1999

		Subtotals	Total	Balance
Banquet	3,783.72			
Printing & Mailing	45.00			
Plaza Resolana	7,475.90			
Refunds	540.00	11,844.62		
Executive Board				
Lewes Board Meeting	216.33			
Election mailing	68.48			
Letterhead & flyers	86.81			
Check printing & fees	27.00			
Atlanta Board Meeting	147.06			
Newsletter	101.54			
Santa Fe Board Meeting	445.51	1,092.73		
Total Expenses			14,357.32	$ 8,147.57
BALANCE ON HAND as of 12-31-99				$ 8,147.57

Conference Participants 1999

Christine Abbott
Jo Allen
Nancy Allen
Anna Marie Amezquita
Deborah Andrews
Dianne Atkinson
Marian Barchilon
Thomas Barker
Stephen Bernhardt
Carolyn Boiarsky
Deborah Bosley
Eva Brumberger
Rebecca Burnett
Locke Carter
Lawrence Clark
William Coggin
Mary Coney
Kelli Cargile Cook
Marilyn M. Cooper
Lisa Casali Daidone
Jennie Dautermann
Marjorie T. Davis
Lynn Deming
Paul Dombrowski
Linda Driskill
James Dubinsky
Peggy Durbin
Julie Dyke
Pamela Ecker
Susan Feinberg
David Gillett
Jeff Graybill
Laura Gurak
Sandra Harner
Hillary Hart
Dick Hayes
James T. Hayes
Laurie S. Hayes
Barbara A. Heifferon
Marjorie Rush Hovde
Margaret Hundleby
Ann S. Jennings
Molly K. Johnson
Johndan Johnson-Eilola
Bill Karis
Bill Karr
Teresa Kynell
Mary Lay
Sherry Burgus Little
Elizabeth Lopez
Carl Lovitt
Eben W. Ludlow
William B. Macgregor
Bruce Maylath
Michael McCord
Cindy Nahrwold
Nancy M. O'Rourke
Elizabeth R. Pass
Donald Payne
Jennifer Craig Pixley
Pete Praetorius
Judy Ramey
Dan Riordan
Karin Robbins
Carolyn Rude
Michael Salvo
Gerald Savage
Renee Schlueter
Karen Rossi Schnakenberg
Suzanne P. Schneider
Karen A. Schriver
Martin Settle
Elizabeth Shea
Graham Smart
Clay Spinuzzi
Katherine Staples
James F. Stratman
Dale L. Sullivan
Janice Tovey
Thomas L. Warren
Linda Welch
William Williamson
Greg Wilson
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